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## ORIGINAL ARTICLES.

### INTERSCAPULOTHORACIC AMPUTATION FOR SARCOMA.

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THE patient, Mr. H., a man of fifty-six years, is without alcoholic history; he has always been in fairly good general health. In September, 1902, he fractured the upper part of the left humerus, being treated by a competent physician with an excellent result. In December, 1902, he noticed a small lump at about the seat of fracture anteriorly. This gave him no special trouble at the time, but in February, 1893, it began to grow and a few weeks afterward he consulted Dr. S. B. Childs who made a diagnosis of sarcoma. A small piece of the growth was removed, examined microscopically, pronounced sarcoma and amputation at shoulder-joint advised. This, however, the man refused and demanded X-ray treatment, which was given by Dr. Childs until the latter part of May, the growth tending to increase. Through the courtesy of Dr. Childs I saw him about April 25. At that time there was a diffuse, semi-fluctuating growth at the upper part of the arm, chiefly in front. This was somewhat larger than a fist and seemed to be attached to the bone. Amputation again advised and refused. I next saw him May 29; the growth was much larger; it was more fusiform, extending well on the chest anteriorly and occupying the entire outer and anterior deltoid region. It seemed to be attached to the humerus but the whole mass was movable on the chest wall.

The tumor was growing, the pain was getting to be pretty severe. In spite of the fact that the urine showed a large amount of albumin (3 per cent.), I was inclined to recommend an interscapulothoracic amputation as a palliative measure and the patient requested this after its dangers had been fully set before him. Four days were devoted to improving the general condition.

*Operation.*—St. Luke's Hospital, 11:30 A.M., June 3, 1903. Chloroform carefully administered by Dr. Olmstead. The middle half of the collar-bone was easily resected, the inner division being made by a wire saw, the outer division by a heavy bone forceps. The pectoralis major was divided downward about the middle of the incision giving easy access to the large vessels. Two arteries of medium size running parallel with the collar-bone were divided and tied. Directly beneath the collar-bone and with no appreciable fibers of the subclavius muscle intervening was a medium-sized vein running transversely. This was not very large and from its superficial position I at

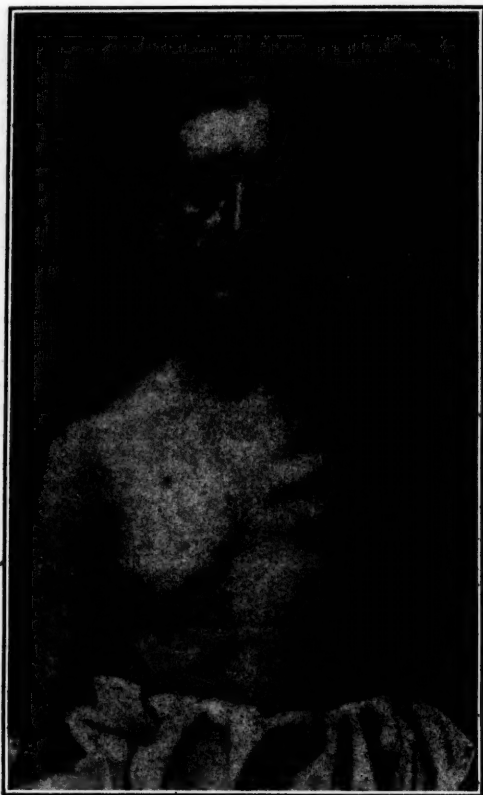
the time judged it a transverse cervical vein. It was divided between two ligatures. It proved to be the subclavian vein for directly behind it the subclavian artery was easily recognized, brought up from its sheath and ligated with heavy silk. Two ligatures a quarter of an inch apart were placed on the proximal side, one ligature on the distal side and the artery divided one-fourth inch outside of the external proximal ligature. An anterior flap was then rapidly fashioned, cutting well outside of the growth. This necessitated incision pretty well forward and inward on the chest wall. A few veins had to be caught; but little blood was lost. Abduction of the limb then put the cords of the brachial plexus on the stretch. Each cord was injected with ten minims of a one-fourth of one per cent. solution of cocaine and at the end of two minutes the cords were divided. The pulse was noted at the time of division of the cords; it did not change. As the growth was lodged in chief part anterior and external to the shoulder an unusually large posterior flap was fashioned, this connecting with the anterior flap just below the axilla. A transverse posterior cut was made just below the spine of the scapula nearly to its posterior border and the soft parts dissected up from the scapula above and below the spine. The scapula was then easily removed and the limb severed. The posterior incisions were nearly bloodless; no artery and but few veins required ligation. The flaps were brought together with moderate tension at the middle of the wound. Gauze drainage at the lower angle. Copious dressings evenly and firmly applied. Time of operation fifty-seven minutes. The patient was in fairly good condition at the close, the pulse being 130. The pulse before operation was 80, during ligation of the subclavian vessels it was 50. The patient rallied well; twenty-four hours later the pulse was 96; he had suffered but little and was very comfortable. At this time urine was being secreted freely, its specific gravity was 1.024 and it showed but a slight amount of albumin.

The gauze drain was taken out at the end of twenty-four hours. The stitches were removed on the seventh day. The wound healed throughout by first intention. The patient had at no time enough pain to require an opiate. He was out of bed on the tenth day. After operation he had X-ray treatment. The accompanying pictures show the condition at the end of two and one-half weeks. He has never complained of a feeling of lopsidedness.

During his stay in the hospital the albumin practically disappeared from the urine. No casts were found at any time. At this time, four months after operation, there is no evidence of

relapse but as histological examination of the growth showed it to be a round-celled sarcoma there is pretty sure to be a return.\* The patient weighs eight pounds more now than he did before the limb was removed. Dr. J. A. Wilder, pathologist to the hospital, reports as follows on the specimen: "The external appearance of the tumor of shoulder presented for examination is that of a large, rounded, smooth mass, occupying the entire deltoid region and being  $16\frac{1}{2}$  inches in circumference. On section this is light flesh colored, lobulated and very friable. It is firmly

Fig. 1.



Interscapulothoracic amputation for sarcoma. Condition at end of two weeks.

attached to the sheaths of muscles and tendons in this locality and more firmly attached to and apparently springing from the periosteum at the point of a fracture of the surgical neck of the humerus. The growth appears to be partially encapsulated in places but has infiltrated in all directions. The growth macroscopically was well included within the lines of incision.

Pieces were taken from different parts of the tumor for examination, hardened in alcohol and

imbedded in celloidin. Sections taken from different places stained with hematoxylin have the same general appearance; namely, a dense mass of small, round cells having large, deeply stained nuclei. A few trabeculae of edematous connecting tissue are seen scattered through the sections. Blood vessels are present in moderate number and invariably have very poorly developed walls, many of them apparently having nothing but the endothelial lining. Diagnosis; small, round-cell sarcoma."

The question of pathological fracture following sarcoma is an interesting one. In January, 1890, I presented\* a specimen of angiosarcoma of the shoulder-joint with fracture through the surgical neck of the humerus at a meeting of the Section on Surgery of the New York Academy of Medicine. This patient had fallen on the shoulder ten weeks before operation, there having been no indication of shoulder trouble previous to the injury. I saw him two weeks after he was hurt and at that time made a diagnosis of fracture, as above noted. There was considerable swelling of the shoulder-joint which became even greater after the application of a plaster-of-Paris splint. Four or five weeks later, the swelling continuing, he was sent from the out-patient department of the hospital into the hospital proper for ward treatment. The condition progressing, amputation was made at the shoulder-joint, the pathologist reporting typical angiosarcoma.

In this case my first thought was that the fracture occurred at the time of the fall and that the sarcoma was occasioned by and followed the fracture. Dr. Weir and Dr. Jacobi, however, believed in the reverse order and attributed the fracture to softening of the bone by the neoplasm. I am convinced that they were right. In the case which I am now reporting, I believe an original fracture to have united, a sarcoma to have developed and a pathological fracture to have followed. I did not know of the last fracture until examination was made of the specimen. It is possible that it took place while the arm was being manipulated during amputation.

This was my first experience with this operation and I beg to acknowledge my indebtedness to recent articles by LeConte† and Lund‡ for valuable assistance. The patient was thin and therefore ligation of the subclavian vessels was comparatively easy, but the operation itself was a little more difficult than usual because of the anterior location of the growth. Resection of the collar-bone was rapidly and easily carried out. Downward division of the pectoralis major as suggested by Lund was of marked help. I was not prepared to find the subclavian vein so closely in contact with the collar-bone. There was practically no subclavius muscle and the vein was so moderate in size that I tied it, in the thought that it was something anterior to the large vessels. In this operation one should ligate

\* January 10, 1904. On correcting the proof of this MS. I receive report of the recent death of this patient from metastatic sarcoma of the hip.—C. A. P.

\* New York Medical Record, Vol. xxxviii, p. 199.

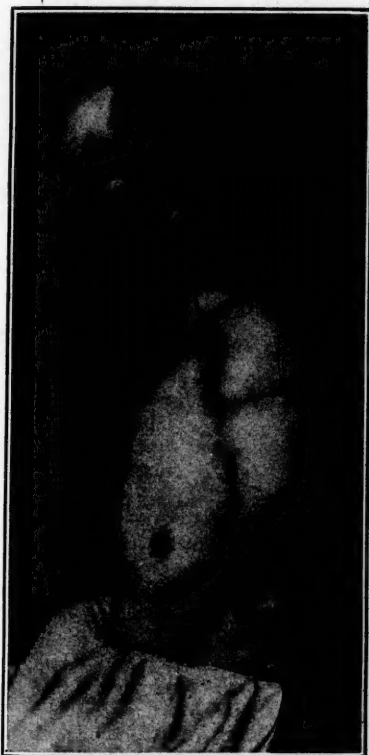
† Annals of Surgery, Vol. xxx, p. 260 and Vol. xxxvi, p. 573.

‡ Boston Medical Surgical Journal, Vol. cxviii, p. 409.

the artery first, elevating the limb to allow the blood in it to get back into the body, and then tie the vein. In another case I should be more careful to do this; in this instance, however, the fact that the vein was first ligated does not seem to have prejudiced the result. After ligation of the subclavian vessels the operation was practically bloodless and was very easy.

The operation is one requiring good light, suitable position of the patient and proper hospital organization. The best position is at the edge of a flat table with a small sandbag between the shoulders.

Fig. 2.



Interscapulothoracic amputation for sarcoma. Condition at end of two weeks.

Tinker\* attributes the first operation of this nature to Dixie Crosby, of Hanover, N. H., in 1836. The subject has recently been studied with much care by LeConte (*loc. supra cit.*). The key to the procedure lies (Berger) in primary ligation of the subclavian artery and vein. For the rapid and easy carrying out of this I judge such resection of the collar-bone as was made in my case to be fairly suitable. When the collar-bone itself is involved in the new growth disarticulation of its sternal end with reflection outward of the entire bone must

be done as advised by LeConte; it may be that this procedure will prove to be the easier and more rapid in all cases. After removal of the collar-bone, division downward of the upper part of the pectoralis major with section of the pectoralis minor as advised by Lund will be found of marked benefit. Unless the patient be pretty fat and the wound deep, access to the subclavian vessels will then be fairly easy; there may, however, be very large veins in front of these vessels and LeConte shows that various operators have experienced considerable difficulty not only with venous hemorrhage but in recognizing the vessels themselves or in gaining access to the artery. An experience of but one case does not warrant an opinion, but it seems to me that in a difficult case I would rather tie and divide all veins as rapidly as possible down to the artery than consume a great deal of time and risk injury to the veins in an endeavor to get the artery first. In such cases LeConte advises primary ligation of the axillary artery, working back from this point to the third part of the subclavian. If one wounds a good-sized vein in this region he is bound to have some difficulty in securing it and his patient is pretty sure to lose a fair amount of blood.

After ligation of the vessels the operation is easy and can be completed rapidly. The flaps will be fashioned according to the location of good tissue. The researches of Crile seem to show that cocaineization of large nerve trunks should be made before their division. Lund lays stress on this. It takes but little time and seems worth doing. In the case here reported the pulse showed no change when the cords of the brachial plexus were divided.

Berger,\* who with Farabeuf developed the modern technic thinks the operation attended with but moderate risk unless malignant disease involves the scapula. In these cases a large amount of tissue overlying the shoulder blade must be removed, the resulting wound is difficult to close and the mortality goes fairly high. Barling, quoted by Jacobson and Steward,† also thinks the mortality low. Of 19 cases, recorded since 1890 and collected by him, all recovered.

#### PREVENTION OF THE SPREAD OF RINGWORM.

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WRITERS from the time of Celsus to the present day have endeavored to improve the nomenclature of the mycotic group. It has long been undisputed that the various lesions described under the title of ringworm are due to the presence of a vegetable parasite in the epidermis, hair follicles, hair or nails. Up to the present decade the fungi found in the various forms of ringworm were believed to be identical. More than

\* The Johns Hopkins Hospital Bulletin, Aug.-Sept., 1902.

\* Semaine Médicale, 1902.

† Operations of Surgery, Vol. I, p. 182.



fifty years ago Gruby indicated a division of the fungi causing ringworm. But his wonderful discoveries were not only not appreciated, but unrecognized, and the *Tricophyton* was accepted by most physicians as the sole factor in all ringworm cases.

Sabaraud, with the advantage of more modern training and inexhaustible patience, brought this subject to a higher plane both clinically and pathologically and established beyond question, the division of ringworm into two classes—the *Microsporon Audouini*, or small spore fungus, and the *Tricophyton*, or large spore fungus, the latter being again subdivided. He frankly admits his work to be simply an elaboration of Gruby's discoveries.

Encouraged by the brilliant results of Sabaraud and stimulated by the necessity for conquering this ever-increasing disease, hundreds of workers have begun the investigation of this subject and have made valuable additions to our knowledge of ringworm fungi.

In this paper the writer desires to point out, as briefly as possible, some of the mediums of transmission. Among these may be mentioned some of the lower animals, as the dog, cat, bird, horse, cow, mouse and sheep and many others. That domestic animals and pets are great transmitters of this disease is proven by the fact that fungi derived from animal sources, though of different species, show a greater vitality than those derived from human sources. Experience proves that the nearer a fungus is to its animal origin the more rapid its growth; also that it loses its vitality by human transmission.

Recently the writer had presented a case of body ringworm. In the house of the patient was found a mangy cat. Microscopical examination disclosed the presence of the same fungus—the *Ectothrix*—in the lesion of both the patient and the cat, thus confirming the suspicion that the disease had been contracted from the cat. Animals, however, cannot be held entirely responsible for the transmission of this disease when we consider the excellent opportunities for diffusion offered by barber shops, bath houses, asylums, day nurseries, and, last but not least, our public schools. That barber shops and hairdressing establishments play an important part in the transmission of these diseases is not to be wondered at when we remember the usual unsanitary condition of these shops of infection.

The disease is not, as is popularly supposed, conveyed by the razor, but by the barber's hands or towels and oftenest by the lathering brush. Not only is the adult exposed here, but frequently the innocent child who has his hair cut brings away as a souvenir of the occasion, a fine case of scalp ringworm. And now for its widest field of action. In our schools, side by side, are seated children from all kinds and conditions of homes. We are not surprised at the increase of this disease when we consider the facility of transmission of fungus either directly from child to child (through the medium of some contaminated

article) and sometimes even by means of the air alone, when there are many affected children congregated. It flourishes more readily in badly nourished or uncleanly children, yet I have met extremely obstinate forms in otherwise healthy children. The gregarious habits of children, the frequent and intimate character of contact in their amusements and studies, and their indiscriminate use of hats, caps, etc., greatly increase the chances of contagion when one of their number is affected with this condition.

Our public schools require certificates of vaccination or of recovery after the acute infectious diseases, yet children affected with scalp ringworm are allowed the privilege of the school room, scattering contagion broadcast. Although its effect upon the skin is usually insignificant, its occurrence in a family or school is a real calamity, owing to its contagiousness, and the social ostracism it entails. Frequently these diseases are brought into a school and there disseminated to the extent of an epidemic, thereby seriously interfering with education. It is a common occurrence in my clinic to find cases of scalp ringworm and, upon questioning the individual, to learn that they are in attendance upon school. We, as physicians with the aid of the modern medical society can do much to correct these evils. That the number of cases of vegetable parasitic disease transmitted through our public schools is steadily increasing is proven by statistics and calls aloud for legislative restriction. Since 1844, Paris has had physicians as school inspectors and now Paris, Brussels and Rome have separate schools for children suffering with ringworm. During their residence in these schools, children receive education and treatment under the care of physicians. For fifteen years legislation through the efforts of the medical societies was sought in New York, but in vain. It was only when they entered the political field and publicly called legislators to account that they succeeded in establishing the Metropolitan Board of Health, the first of its kind (based on sound sanitary principles) in this country. Many other cities, among them Boston, Philadelphia and Chicago, have realized the enormity of this evil and have appointed school inspectors, either physicians or nurses, whose duty it is to visit the schools as frequently as possible and indicate to the teacher or principal each child affected with any contagious disease, parasitic or otherwise. All suspected cases are immediately excluded from the school until they can furnish a certificate from their attending physician stating that all danger of contagion is removed. Physicians attending such cases should withhold the certificate for several weeks after the disappearance of all diseased hairs and stumps. If the case exist in a boarding school or asylum the patient should be isolated if possible and all others who have been exposed be subjected to a thorough examination, sparing neither time nor trouble, and giving careful attention to all isolated stumps and suspicious scaly patches. The appointment of medical in-



spectors in the schools shows gratifying results, not only in the decrease of the per cent. of cases but also in the personal hygiene of the children, those who formerly came to school unclean gradually improving in their appearance and habits. Parents, to whom this disease is the source of much anxiety, soon learn to appreciate the value of these measures and acquire a better understanding of the necessity of isolation. The writer would urge greater frankness to ourselves as well as to our patients in dealing with these diseases. The practitioner sometimes fails to appreciate the importance of detail, and carelessness in this respect is responsible for a number of cases. The physician's first duty in the management of ringworm is to prevent the spread of the disease to others. He should insist upon an examination of all other children in the family or school and, while making such examination, he should not forget that his hands, if not properly cleansed, may convey the disease to those as yet unaffected. The scalps of all the children should be thoroughly washed several times a week until all danger of contagion is past.

The individual under treatment should be required to sleep alone and use separate towels, combs and brushes, these articles being frequently sterilized to prevent reinfection. All domestic animals or pets which are found to be mangy should be either destroyed or isolated until by proper care they can be rendered incapable of the transmission of the fungus. As a rule the poorer the people the larger the number of cats and dogs they possess. The extra tax recently imposed by the legislature has done much to decrease the number of these nuisances and so lessen this means of transmission. The establishment of sanitary barber shops where brushes, razors, etc., are sterilized just before being used can do much to diminish this trouble. Persons who patronize these shops should provide their own equipment, whereby they will probably protect themselves from infection. On the other hand, infected cases should not be taken to the barber shop to have their hair trimmed or shaved, but it should be done at home and the diseased hair burned. Briefly considered, this seems a reasonable solution of this evil, and I believe we are justified in requesting the help of the law in our efforts to restrict this disease. Large expenditures are made yearly by both State and city for objects less worthy, yet little thought is given to the physical welfare of the child—the future dependence of our country. Prophylaxis has invaded the domain of nearly every disease; its science and practice are daily increasing and its field of usefulness becoming better known. Scientific research can demonstrate few more valuable triumphs than the results of preventive medicine.

**Consultants to Bellevue.**—At a meeting of the Trustees of Bellevue and Allied Hospitals held January 8, 1904, the following physicians were appointed Alienists and Neurologists to Bellevue Hospital: Drs. Frederick Peterson, Joseph Fraenkel, Edward D. Fisher, Bernard Sachs.

# CRYOSCOPY OF URINE. THE METHOD OF CLAUDE AND BALTHAZARD.

BY F. BURTHE, M.D.,  
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THE biological applications of cryoscopy have, among other interesting results, raised up a new theory as to the renal secretion, and furnished about the disorders of this function, as well as about the general nutrition, some indications of a very high value. Without any theoretic consideration or scientific discussion on the grounds and relative weight of the various processes used by several authors in order to apply cryoscopy to the physiological studies, I only wish to state the way that Claude and Balthazard, from Paris, have pursued, and the results at which they have arrived.

It is necessary to accurately collect the urine which was passed during twenty-four consecutive hours, so as to get an average urine from which the freezing point can be taken. This freezing point is found, in practice, to vary between  $-1^{\circ} 30$  C. and  $-2^{\circ} 20$  C. Claude and Balthazard name it  $\Delta$  and express it by hundredths of a degree C., stating that the number so obtained represents the number of solid molecules dissolved in 1 c.c. of urine. That statement is perfectly allowable, as, according to de Coppet's law "the fall of the freezing point of a dissolution is proportional to the number of solid molecules contained in a given volume of this dissolution," so that if  $\Delta = -1^{\circ} .30$  C., then there are a number of solid molecules proportional to 1.30, or more simply to 130, in 1 c.c. Now if V expresses in "centimeters cubes" the volume of urine that is passed during twenty-four hours, then the product  $\Delta V$  may represent the number of molecules eliminated with the urine of the day; and, in order to get some comparable results from the different subjects, one must refer to the unit usually chosen as characteristic of the living matter, that is to the kilogram of the body's weight. So that if P is the weight of a subject, one must divide by P the already obtained product  $\Delta V$ , and then one will have a number  $\frac{\Delta V}{P}$

which expresses what Claude and Balthazard have named "the total molecular diuresis." This total molecular diuresis represents as well the number of molecules that have filtered through the glomeruli during the last twenty-four hours and for each kilogram of the body's weight. While in normal state this number varies from 2,500 to 4,000.

Tabling off from that total number of the excreted molecules, the number of the molecules of chloride of sodium, one will have a right to say that only elaborated molecules are left remaining. Accordingly the amount of chloride of sodium (NaCl) must be ascertained with great precision and in that process is obtained a number, p grams per cent., e.g., for the use of which it is allowable to say that, in compliance with Blagden's law, as  $-0^{\circ} 605$  C., is the freezing point of a dissolution of NaCl at 1 per cent., that salt

causes a fall of the freezing point of the urine, of  $p \times 0.605$ , or, as before, there are in the urine  $p \times 60.5$  molecules of NaCl for 1 c.c. So that there are  $p \times 60.5 \times V$  molecules of NaCl excreted during the twenty-four hours and  $p \times 60.5 \times V$  for each kilogram of the body's

weight, number that we should have to take from  $\frac{\Delta V}{P}$  in order to get the new number  $\frac{\delta V}{P}$  named by Claude and Balthazard as "the diuresis of the elaborated molecules."

In good health that number varies according to the diet, the exercise and the activity of the nutrition, but it oscillates between 1,800 and 2,500.

We are now in possession of two valuable means of investigation about the renal secretion, as  $\frac{\Delta V}{P}$  gives some information as to the number

of molecules that have filtered through the glomeruli and consequently must vary in the same way as the activity of the circulation in the kidneys; while  $\frac{\delta V}{P}$  points out the way which works the epithelium of the tubulis and so gives a measure of the urinary depuration.

To these two numbers Claude and Balthazard have joined a third one,  $\frac{\Delta}{\delta}$  expressing the relation between the number of molecules that have filtered through the glomeruli and the number of elaborated molecules that have been excreted; that is to say, that  $\frac{\Delta}{\delta}$  measures the rate of the molecular exchanges.

Between the three numbers there are necessarily some relations which in order to discover, Claude and Balthazard have studied a great many normal urines, by means of which they have been able to frame some scales of correspondence, enabling anyone to graphically represent the results of the study of any urine. According to these authors, the scale of

$\frac{\Delta V}{P}$	beginning at 0	progressively increases by 500
$\frac{\delta V}{P}$	" " 0	" " 300
$\frac{\Delta}{\delta}$	" " 1	" " 0.10

as may be seen in the following table, which shows what amount  $\frac{\Delta}{\delta}$  must not exceed for each

value of  $\frac{\Delta V}{P}$  if the kidneys are sound.

$\frac{\Delta V}{P}$	$\frac{\delta V}{P}$	$\frac{\Delta}{\delta}$
3,000	1,800	1.60
2,500	1,500	1.50
2,000	1,200	1.40
1,500	900	1.30
1,000	600	1.20
500	300	1.10
0	0	1

The reader will note, and we beg leave to insist upon this remark, that, until now, there is nothing hypothetical in all that has been said; Claude and Balthazard have only translated in forms for the use of physiologists the laws of cryoscopy just as these have been worded by their authors.

We will now examine what applications they have made of their formulæ and what interpretation they have given to their results. For this purpose they have acknowledged the theory of Koranyi, to which we have alluded in the beginning of this paper, but that theory is not indispensable, and the results at which Claude and Balthazard have arrived by their researches would exist in their integrity and strictness, even if Koranyi's theory were not admitted. The interpretation only might be slightly different, and yet this would apply to a few of these results and not to all of them.

According to Claude and Balthazard, in *cardiac insufficiency* the rate of  $\frac{\Delta V}{P}$  and  $\frac{\delta V}{P}$  is low, and the more so that the circulation is slower; but, kidneys being sound, the corresponding values of  $\frac{\Delta}{\delta}$  are also very low down. On the contrary, in *cardiac hyperstenia* the values of  $\frac{\Delta V}{P}$  become higher than 4,000.

In *renal insufficiency*  $\frac{\Delta V}{P}$  is normal or low,  $\frac{\delta V}{P}$  very low, but  $\frac{\Delta}{\delta}$  becomes exceedingly high in reference to  $\frac{\Delta V}{P}$ .

Close to these standards, allowing a diagnostic not yet wholly proved, it is possible to find many other forms sometimes more difficult of interpretation. For instance, the arterial hypertension of arteriosclerosis may be characterized by some high values of  $\frac{\Delta V}{P}$  with  $\frac{\Delta}{\delta}$  unsettled, as there is or is not some renal insufficiency. For some cardiac patients whose kidneys were at the same time insufficient,  $\frac{\Delta}{\delta}$  had some values too high for the numbers of  $\frac{\Delta V}{P}$ .

Claude and Balthazard, though thinking their results sufficiently plain and precise to enable them to make a diagnosis, have always endeavored to make the clinic and cryoscopic examinations run parallel, using various processes of investigation at the same time with cryoscopy, and controlling, as many times as it was possible, their diagnosis by means of pathologic anatomy and histology. They have thus been able to describe a cryoscopic standard of cardiac hyperstenia and another of renal insufficiency. In the nephritis they have seen that there are, during the course of the illness, some periods of a sufficient permeability of the kidneys, and some other periods

of insufficiency, these last becoming more and more frequently until they culminate in a terminal period of total insufficiency. As for the substances dissolved in the urine, their elimination is relatively more abundant, apart from the uremic fits, in the interstitial nephritis than in the ordinary form of chronic Bright's disease.

But the formulæ are chiefly useful because they allow us to see in Bright's disease some latent insufficiencies which need a very long time to bring about some accidents of auto-intoxication. Repeated examinations during a few consecutive days may disclose some transitory insufficiencies hardly surmised after a mere clinic examination.

In the severe infectious illnesses, which may be complicated with heart or kidney disease, it is expedient to know early what is the functional value of these organs. Claude and Balthazard have determined the cryoscopic form of the urine in some cases of diphtheria and of typhoid fever, and found it sufficiently steady to show, through a change of the ordinary relations, that the heart or the kidneys are not perfectly sound.

Very special and nearly pathognomonic is the cryoscopic form in pneumonia. At the outset the values of  $\frac{\Delta V}{P}$  are normal and those of  $\frac{\delta V}{P}$  are

often higher than normal, while the values of  $\frac{\Delta}{\delta}$  are very low and nearing the unit; which is consequent with the absence of chloride of sodium in the urine. Two days after the fall of the temperature comes on a urinary crisis, which Pick had already observed during which  $\frac{\Delta V}{P}$  and  $\frac{\delta V}{P}$

slightly grow, while  $\frac{\Delta}{\delta}$  increases suddenly and reaches, or even passes its normal value; and there is a urinary discharge of chloride of sodium. But this discharge, far from being transient, as is generally believed, lasts two or three weeks, as a long time is required for the resorption of the overflow.

At last, in pleurisy, the cryoscopic curve of urine plainly illustrates the various stages of the overflow's evolution; the values of  $\frac{\Delta}{\delta}$  remaining

low during the increasing and the stationary stages, only to rise suddenly when the overflow begins to be resorbed. Koranyi had pointed out the rapid fall of the relation  $\frac{\Delta}{\text{NaCl}}$  at the time of the resorption of pleural overflows; Lesné and Ravault have recently confirmed that fact. It is easily seen that the relations  $\frac{\Delta}{\delta}$  and  $\frac{\Delta}{\text{NaCl}}$  do vary in opposite directions,  $\frac{\Delta}{\delta}$  rising and  $\frac{\Delta}{\text{NaCl}}$  falling when the amount of chloride of sodium in the urine increases.

After all, if we multiply the volume  $V$  of urine that is voided during twenty-four consecutive hours by the freezing point  $\Delta$ , expressed in the

hundredth of a degree C. of this urine, and divide the product by the weight  $P$  of the body, we get

a value  $\frac{\Delta V}{P}$ , which represents the molecular

elimination for the twenty-four hours and for each kilogram of the body's weight; while the elimination of the non-chlorined substances coming from the disassimilation is expressed by the formula  $\frac{\delta V}{P}$ . These two values may diminish

and reach some very low values in cardiac insufficiency and in the renal impermeability too; this first result is beyond dispute and through it, the cryoscopy, is a way to appreciate scientifically and very quickly any urinary elimination.

Moreover, Claude and Balthazard have seen that the ratio  $\frac{\Delta}{\delta}$  compared with  $\frac{\Delta V}{P}$  may have a

diagnostic significance and characterize the alterations of the renal epithelium. The relations between  $\frac{\Delta V}{P}$  and  $\frac{\delta V}{P}$  which express this renal

insufficiency, have been empirically fixed by means of observation and anatomoclinical studies of a great many cases. The scheme of renal impermeability so found has always been conformable to the facts.

These results are easily interpreted by means of the Koranyi theory as to the renal secretion, which is corroborated by a certain number of physiological facts. Koranyi asserts that through the glomeruli filters a pure or nearly pure solution of chloride of sodium, which concentrates while in the tubules by some resorption of its water, and is enriched with the extractive matters from the blood by means of molecular interchange, so that for each molecule coming from the blood to the urine, one molecule of chloride of sodium passes from the tubules to the blood, and the secretion of elaborated substances is the result of the activity of the epithelial cells of the tubulis contortis. When this epithelium is injured, the interchange is, of course, less perfect and there is an excessive quantity of NaCl excreted; and then the value of  $\delta$  becoming more and more different from the value of  $\Delta$  the ratio  $\frac{\Delta}{\delta}$  will be greater and reach, for a given value of

$\frac{\Delta V}{P}$  some values higher than those which occur when the kidneys are sound. On the other hand, if there is a mere interchange of molecules in the tubules, the number of molecules that have filtered through the glomeruli is the same as the one  $\frac{\Delta V}{P}$  found in the urine and this number of molecules being proportional to the rate of the circulation in the capillaries of the glomeruli the conclusion must be that  $\frac{\Delta V}{P}$  is a measure of the circulation's activity.

Some authors have written that the Claude and Balthazard method was grounded on a far from



being demonstrated hypothesis. From what precedes it is easy to infer that it would be fairer to say that this method has its ground on facts, and that the interpretation of those facts only wants Koranyi's hypothesis. That interpretation, after all, is not necessary, the method, just as it is, has already given to its authors and several other observers, some results worth notice and in perfect compliance with the other means of exploring the renal function.

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## THE PATHOLOGY AND TREATMENT OF OSTEO-ARTHRITIS.

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IN a recent paper on the relation of articular rheumatism to other arthritic affections, the Russian writer Predtetschensky enumerates no less than sixteen varieties of joint disease, and doubtless the possibility of further differentiation has not been exhausted by him. With all deference it must be objected that such elaborate classification is not greatly to be desired. Effort should rather be made toward simplicity and unification. Thus all forms of joint disease which occur during the course of, or as the sequel to, the infectious or toxic diseases might well be collectively known as "infective" or "toxic" arthritis. Individually, such cases, by the adjectival use of the name of the primary disease in designating them, should remain linked with that disease, regardless of the extent and duration of the morbid process in the joint. This group, containing as it does both rheumatism and gout, is clinically very large,

and in strictness should include many cases of chronic joint disease which at present are not within it.

With the exception of the cases due to simple traumatism, the remaining arthritic affections are swept together for the most part into the class called "Rheumatoid," and, consequently, it is in this heterogeneous collection that we find the most profuse and bewildering assortment of titles. "The domain of progressive deforming polyarthritis," writes Predtetschensky,<sup>1</sup> "will contain besides the essential polyarthritis deformans, and malum coxae senilis, the varieties which have been known as polyarthritis chronica villosa hyperplastica, many cases of nodular rheumatism, and some of Heberden's nodules; others will be found to belong in the class of uric polyarthritis," and so on. It will be a decided gain if these and other irregular joint affections can be made to fall naturally into two or three well-defined groups.

In a previous paper<sup>2</sup> the writer has dealt with "Rheumatoid Arthritis," which is regarded as a distinct constitutional disease, usually if not always of toxic origin. Beginning with inflammation of the synovial membrane, eventually all the arthritic tissues are implicated in a morbid process essentially atrophic, and the joint becomes constricted, deformed, limited in its movements, and, in extreme cases, ankylosed. Muscular wasting and shortening conduce greatly to this result. The general symptoms are irregular fever, anemia, emaciation, pain, muscular twitchings and cramps, disturbed reflexes and other evidences of a constitutional polyarticular disease in which the nervous system is more or less deranged.

Osteo-arthritic affections constitute the other main division of the rheumatoid group. In osteoarthritis, which may be either non-articular or polyarticular, the brunt of the disease falls upon the cartilages and articular ends of bones, not upon the synovial membrane as in rheumatoid arthritis. The changes in the affected joints are partly destructive and partly hypertrophic. As a rule the cartilage is the first to suffer. It becomes fibrillated and eroded, especially where it is subjected to pressure and friction. At the margin of the articulation where the morbid process is less intense and the proliferating cells are prevented from escaping by the overlapping synovial membrane, the cartilage hypertrophies and becomes heaped up in irregular nodules or echondroses, which give a lipped appearance to the articular borders. Subsequently these nodules undergo calcification or ossification; sometimes they break off and form "loose bodies" in the joints. The same double process of destruction and overgrowth takes place in the ends of the bones. Subjected to pressure and friction, they become flattened, worn away or absorbed, but in the parts free from mechanical influences, there is hyperplasia, ending in the formation of osteophytes and other bony enlargements. The synovial membrane is also affected;

it becomes thickened, indurated and its fringes hypertrophied, and in the latter stages of the disease may be destroyed by ulceration and absorption.

Ligaments and adjacent tendons undergo calcification or absorption. The whole articulation may thus become quite altered in its form, and its function almost if not quite destroyed.

This infection is seen most frequently in elderly people. It commences insidiously with weakness, stiffness and pain. The weakness is most perceptible if the affected joints are concerned in locomotion. The pain is either of a constant gnawing character, or consists of sharp needle-like thrusts. The stiffness, made worse by rest, improves or temporarily disappears during exercise. As the disease advances these symptoms become more severe; the joint begins to creak and grate on movement, its range of movement becomes mechanically limited by the presence of chondrophytes and osteophytes between and around the articular surfaces, and the muscles in the neighborhood of the joints become wasted and contracted. There may be considerable effusion into the joint. When this is absent, the affection is known as "Arthritis sicca." At no time is the general health seriously, if at all, impaired. The progress of the disease is very slow, and these patients live usually to a good old age.

The forms of osteo-arthritis which have received particular names are Heberden's nodes, spondylitis deformans, and *malum coxae senilis*.

*Heberden's nodes* are the little bony protuberances upon the terminal phalanges often seen in old people, and, as pointed out by the writer elsewhere,<sup>3</sup> are to be found in such diverse conditions as gout, cancer, dilatation of the stomach, rheumatoid arthritis and syphilis.

As these nodes are simply an abnormal growth of bone, they are structurally quite different from the chalky deposits on the fingers seen in gouty cases. Their significance consists in being an early indication of a general tendency to osteo-arthritis.

*Spondylitis*.—The whole or part of the vertebral column may be affected by osteo-arthritis. Nodular deposits are formed at the edges of the articular cartilages which ultimately become ossified, and the contiguous ligaments and fibrous tissue are implicated in the same process. The intervertebral discs subjected to unusual pressure, become atrophied. If ankylosis occurs before this atrophy has proceeded far, there is little or no spinal curvature, but if it occurs afterward, the deformity may be considerable. The condition is then known as spondylitis deformans. In many of these cases there is a history of gonorrhea. The spine alone may be affected, but generally either the hips or the shoulders, according as to whether the cervical or lumbar region of the spine is the part diseased, are also involved. This becomes the Spondylosis rhizomelique of Strümpell and Marie. The spinal deformity

and rigidity described by Van Bechterew under the name "kyphose heredo-traumatique" appear to be simply the secondary symptoms of a chronic meningitis, the ligamentous and osseous structures of the vertebral column being unaffected.

*Malum Coxae Senilis*.—Osteo-arthritis is especially apt to affect the hip-joints of elderly people, and at first it was supposed that it never manifested itself in any other way. Hence this particular name, which very properly was discarded soon after it was originated, and it ought not to be in use at the present time. In the hip the disease generally follows an injury, such as a fall upon the trochanter. Pain, difficulty in walking, or a slight limp are among the earliest symptoms.

The intrinsic pain of the joint may be elicited by pressure over the capsule and by passive movement of the limb in various directions. Usually, the patient complains far more of the referred pains. These may be very severe in the region of the external cutaneous nerve, the condition thus somewhat resembling meralgia paresthetica; or they may be referred to the knee as in tuberculous coxitis. Often the pain is that of sciatica, and unquestionably, in many instances of apparently uncomplicated sciatica, the underlying condition is that of osteo-arthritis of the hip.<sup>4</sup> In an article just published,<sup>5</sup> Bruce goes much further, the careful study of 418 cases of sciatica convincing him that this affection is simply the forerunner of osteo-arthritis, "sciatica when unrelieved, eventually terminating in rheumatoid arthritis, which in its turn leads to bony deposits on the femur, and also on the ilium, these changes again proceeding to ankylosis between the femur and the pelvis." In yet other cases, the pain is in bulk, the sufferer clasping the thigh all around and saying that pain is in every part of it.<sup>6</sup> This widespread distribution of pain is applicable to the fact that in a number of these cases, the lower part of the spine is osteo-arthritic as well as the hip, consequently the lumbar and sacral nerves emerging from the affected region are continually being swept by currents of pain. Muscular wasting is quite marked and the limb may be considerably shortened, especially in those cases where the neck of the femur is undergoing the rarefaction and absorption incident to old age.

Other joints apt to suffer, but which have received no particularly descriptive names, are the shoulder and the knee.

Pain, limitation of movement, creaking and grating and muscular wasting are the principal symptoms of the disease in the shoulder as elsewhere. Where the enlargement of the head of the humerus is smooth and rounded, the general aspect of the joint may for the moment mislead one into thinking a subcoracoid dislocation is present, as in addition to the symptoms of pain and restricted movement, there is a marked prominence in front of the shoulder and what seems to be a depression behind. In the shoulder

as in the hip, the disease often follows an injury, especially in the old.

The knee is the joint which is attacked most frequently. Often both knees are affected, either concurrently or consecutively. One of the earliest symptoms in these cases may be sudden, unexpected and often most embarrassing weakness of the knees, which give way completely. A patient of the writer's affected in this manner while out walking, was compelled to clutch desperately at a lamp-post to save herself from falling, and the fear that passers-by would think she was intoxicated added greatly to her distress. The creaking and grating, nodular enlargements and other evidences of the disease are similar to those in other affected joints and need no particular description.

The question now arises: Does this arthritic complex of enlargement of the ends of the bones, calcification of ligaments and destruction of cartilage and synovial membrane, occur in other diseases? It is an important question because the comparatively few cases of osteo-arthritis, now deemed idiopathic, have no characteristic symptoms, constitutional or otherwise, and if practically identical articular lesions are found in a variety of conditions, it may reasonably be assumed that osteo-arthritis is always a secondary affection. The answer must be in the affirmative, for to mention only a few diseases out of many, the morbid anatomy of the joints in such dissimilar diseases as locomotor ataxia, gout, and hemophilia is often practically the same as in osteo-arthritis.

Further, in such cases as syphilis and osteitis deformans, in which the characteristic osseous lesions occur in the shafts of the bones, not infrequently the joints also suffer and become osteo-arthritic. "At the edges of the condyle," so runs the description of a syphilitic knee-joint, "were nodular outgrowths of cartilage, such as are commonly seen in osteo-arthritis; none of them were of large size; the external condyle was lipped in a very marked manner." In a case of osteitis deformans, the arthritic changes "were identical in character with those found in certain types of rheumatoid arthritis, or perhaps more correctly, osteo-arthritis." Conversely, in acute articular rheumatism, the shafts of the bones may be affected as well as the joints, periosteal nodes often forming upon them, and in cases of osteo-arthritis, hypertrophy of the shafts and epiphyses has been noticed.<sup>9</sup> From this it may be inferred that allowance being made for the effects of articular movements, there is no essential difference between overgrowth of the shaft of a bone and overgrowth of its extremities. To ascertain precisely the nosological position of osteo-arthritis, it will be necessary therefore to collate comprehensively all the conditions in which there occur arthritic or osseous lesions more or less resembling those found in osteo-arthritis. This may conveniently be done by forming them into three divisions:

#### *I. Infective or Toxic. II. Nutritional. III.*

*Traumatic.*—I. The characteristic lesions of osteo-arthritis may occur during the course of many infective or toxic diseases. Thus we find them in locomotor ataxia,<sup>10</sup> tuberculosis,<sup>11</sup> leprosy,<sup>12</sup> syphilis, gonorrhea (Rheumatisme blennorrhagique a forme nouee), rheumatism, gout, rheumatoid arthritis and in syringomyelia,<sup>13</sup> a disease probably of infective origin also. They are also found in cases of chronic gastro-intestinal anti-intoxication particularly in the form of Heberden's nodes,<sup>14</sup> in uterine disease<sup>15</sup> and during the systemic disturbance incidental to the menopause, in chronic pulmonary affections (hypertrophic pulmonary osteo-arthropathy), and in other local conditions from which septic infection may arise. Whether the irritation inducing the arthritis in these diseases is from the irritant action of the germs themselves which have obtained access to the joints by way of the blood stream, or from the chemically irritant action of the toxins elaborated by them, is an interesting question. Poynton and Payne<sup>16</sup> isolated a diplococcus from the diseased knee-joint of a dead human being, and injected a culture of it intravenously into a rabbit, which in turn developed an arthritis of the knee. Ten weeks later the animal was killed and the bones of the knee-joint were found to be thickened and lipped. On the other hand it has been shown by experiment that the prolonged administration of small doses of inorganic poison is capable of inducing hyperplasia of bone. No doubt the action of toxins is the more persistent and damaging, and apparently they may remain in the system and continue to produce their harmful effects, long after the original disease has subsided and the germs have disappeared from the fluids of the joints.

Those diseases in which there is a very pronounced arthritic diathesis, as rheumatism, gout and rheumatoid arthritis are exceptionally prone to osteo-arthritis and furnish most of the polyarticular cases, it being assumed in this connection that rheumatism is an infective disease, and that the characteristic features of gout and rheumatoid arthritis are due to toxic substances present in the system. For convenience of expression, and because the writer believes that the osteo-arthritis is simply the terminal expression of the original disease, new terms are used in the description of these conditions, which it is hoped will make for clearness, and not cause confusion to be worse confounded.

*a. Rheumatic Osteo-arthritis.*—The term "chronic rheumatism," as commonly used, covers a multitude of joint troubles. It should strictly be limited to those cases of acute and subacute articular rheumatism in which there is never complete recovery because the rheumatic process continues to smolder on in the joints, or else the tissues of the joints have been so damaged, or their vitality so impaired, that they never return to their normal condition even though the specific rheumatic process may long ago have ceased. It is easy to understand how cold and wet and excessive use in such cases may cause a recrudescence.



cence of the disease. There are several degrees of chronic rheumatism. In the mildest cases, pain and stiffness are the only symptoms, with perhaps a little synovial crackling. In others, there is thickening of the synovial membrane and capsule which eventually may contract and so cause deformity, but cartilage and bone are unaffected, the "fibrous rheumatism" of some authors. In still another group, after repeated attacks of acute or subacute articular rheumatism, lipping occurs or osteophytes are formed, the disease thus merging into osteo-arthritis.<sup>17</sup>

*b. Gouty Osteo-arthritis.*—It is a matter of common observation that osteophytic formation and the destruction of cartilage may result from repeated attacks of gout in a joint.<sup>18</sup> Osteo-arthritis occurs still more frequently in women who belong to gouty families, although gout itself may seldom or never attack them in its typical form.

According to the latest theory of the nature of gout, as expounded most suggestively by Woods Hutchinson,<sup>19</sup> the excess of uric acid in this disease is ascribed to the disintegration of those leucocytes and fixed cells of the body which have been destroyed in the process of combating or neutralizing certain toxins of gastro-intestinal origin. Uric acid is a chemical end product of the disintegration of the nuclein of these cells, and the failure of the system to eliminate it, leads to its disposition in the various tissues of the body, particularly in the joints. Another end product is phosphoric acid, and it is possible that the retention in the system of the compounds of this substance to an abnormal amount, may be one of the causes of osteophyte formation in chronic gout, for Wegner has shown that the prolonged administration of small doses of phosphorus to animals induces a very marked hyperplasia of bone. But whether the irritation causing this hyperplasia arises from the excessive phosphates in the system, or from the mechanical irritation of the crystals of sodium biurate deposited in the tissues of the joints, or from the toxins which originated the primary disease, there is undoubtedly a very close connection between chronic gout and osteo-arthritis, as shown by the frequent occurrence in gout of osteophytes, lipping of bone and the other morbid changes characteristic of osteo-arthritis, "and these changes are not peculiar to gouty joints, but are identical in nature and character with those which are produced by repeated and chronic inflammation of the joints from rheumatism or other cause."<sup>20</sup>

*c. Rheumatoid Osteo-arthritis.*—This is not a very desirable designation, but its meaning is sufficiently clear, for just as osteo-arthritis may follow in the trail of articular rheumatism and gout, so it may follow rheumatoid arthritis. One or two writers<sup>21</sup> contend that in such cases we have evidence of two distinct concurrent diseases, and deny that hypertrophy of bone ever occurs in rheumatoid arthritis as an integral part of it. Abstractly this may be so; clinically, the distinction is not of great importance, and it is doubtful if

it can be maintained.<sup>22</sup> In all chronic joint diseases a double process is at work: the one leading to atrophy and destruction, the other to repair and overgrowth. No doubt in childhood and youth, owing to the special proclivities at that age of certain tissues over others to become diseased, and their greater vulnerability to destructive agencies, the arthritic lesions may be altogether atrophic; but in those who rally and become well nourished in spite of the continuance of the disease, and in those instances where rheumatoid arthritis does not appear until middle life is reached, the characteristic osteophytes are often found in the affected joints.

Of course as to all these cases following rheumatism, gout, rheumatoid arthritis, and other toxic diseases, it may be asserted that we have one distinct disease following another, as tuberculosis may follow measles. The weight of evidence however is in favor of the view that the osteo-arthritis is not due to the introduction of any new element of disease, but that it is simply the effect of the lingering irritation of the tissues of the joints by the toxins of the primary disease from which the patient has never recovered.

*II. Nutritional.*—In certain hypertrophic affections of the bones and joints, there is imperfect or perverted nutrition. In rickets, accompanying the defective ossification, due to the lack of certain necessary elements in the food, there is frequently hyperplasia as well, and among the bones so affected are the long bones with their articular ends. This hyperplasia of bone is suggestive of the existence of a subacute or chronic inflammation, a view supported by the experiment of Kasowitz, who produced a state of bone corresponding to that of rickets, by inducing hyperemia in the limb of a growing animal by means of repeated applications of an Esmarch bandage; but it may be owing to the impetus of the formative process expending itself abnormally, because thwarted in its normal direction from the want of proper material.<sup>23</sup>

Another very important factor in constructive metabolism is the internal secretion of various glands. Any abnormality of these may cause overgrowth of tissue, and apparently, pathological alterations in one gland produce alterations in the others.

In acromegaly, which depends according to our present knowledge, upon disease of the pituitary body, hypertrophy of the thyroid gland, and the functional persistence of the thymus gland, in addition to the characteristic enlargement of the bones of the head, feet and hands, there is a tendency in all the bones to exaggeration of normal ridges and tubercles, and to the formation of osteophytes in the neighborhood of the articulations. The aberrant growth of the bony skeleton in gigantism depends upon a very similar condition, as proved by a recent instance in which there was an epithelioma of the pituitary body and hypertrophy of the thyroid gland.<sup>24</sup> So also at the other pathological extreme. In a dwarf, though the long bones were diminished

in length, "the articular ends were swollen into irregular globular masses," and Hektoen, who describes the case very fully, found the pituitary body and thyroid gland abnormal.<sup>24</sup> Mendel calls attention to the great similarity between the symptoms exhibited by dogs whose thymus glands have been removed, and those of rickets in children, and quotes another observer, who ascertained as a positive fact that in all rickety children, there is something wrong with the thymus.<sup>25</sup>

In osteomalacia, a disease which seems to be in some cases dependent upon an abnormal condition of the ovaries, as it has been cured in several instances by their removal,<sup>26</sup> the atrophied bones are in many parts encrusted with osseous deposits. This leads to Brown-Sequard's theory that all senile change, which necessarily includes the proneness of the tissues to calcification and ossification, depends upon the loss or diminution of the generative functions. In the French giant Constantine, who died recently at the age of twenty-nine years, the genital organs were atrophied, and sometimes they are atrophied in acromegaly.<sup>27</sup> Wieting states that the lack of regulative influences from this condition, as in eunuchs, is responsible for overgrowth of the skeleton, reporting in detail the case of a young giant almost nine feet high.<sup>28</sup>

From all this it is evident that whenever there is osseous hyperplasia which cannot be traced to any other cause, there is a possibility of one or other of these glands being at fault. The precise action of their secretions is not yet fully explained. Perhaps they do nothing more than regulate metabolic processes, preserving the normal balance between repair and waste; or what is more likely, they may have the power of destroying or converting into harmless compounds, certain poisons the product of cellular activity, which, if allowed to remain in the system unchanged, act as irritants and stimulate the tissues to overgrowth.

*III. Osteo-arthritis of Traumatic Origin.*—A large proportion of the cases of monarticular osteo-arthritis are due directly or indirectly to some form of traumatism. In many instances the injury falls upon the tissues predisposed to osteo-arthritis by advanced age, or by some antecedent disease such as syphilis, tuberculosis, gout and rheumatism; but that abnormal growth may follow an injury of tissues previously quite healthy, is proven by the large nodes from this cause on the antlers of stags.<sup>29</sup>

The injury causing osteo-arthritis may be sudden and direct, as a blow, sprain, fracture or dislocation. Extremely heavy labor throwing an excessive strain upon the joints will also produce it; this occurs with great frequency in horses as well as in human beings.<sup>30</sup> A milder form of the same morbid process is seen in the thickened phalangeal joints of washerwomen, and of ardent baseball players. The irritation arising from the presence of a foreign body in the joint, such as the fragment of a needle, will cause osteo-

cartilaginous overgrowth.<sup>31</sup> In hemophilia, the mechanical irritation from unabsorbed blood clots in joints which have been the seat of repeated hemorrhages must be an important factor in starting the morbid process which ends by making such joints typically osteo-arthritic.<sup>32</sup>

Injury or irritation of any and every kind is thus capable of starting an osteo-arthritis in man and the lower animals. In this connection it is interesting to note that the lower the form of life, the greater is the tendency to excessive growth after injury; and as an evolutionary corollary, the tissues of the human body which show the greatest potentiality for reproduction when stimulated by injury or inflammation, are those which are the least highly organized and most widely distributed, such as cartilage, bone, and the other tissues of the connective tissue group. Indeed, comparative anatomists now tell us that our bones are merely the half dead calcified framework of the body, built up largely from waste material, and therefore of the same lowly excretory origin as the shell of the oyster, and the chitine armor of insects and crustaceans.<sup>33</sup> In the oyster itself we can see the effects of irritation by comparing the thin, smooth shells of those which have lived in quiet shallow waters, with the thick, rough, laminated shells of oysters which have to contend with the pressure and buffeting of the deep sea.

The great majority of traumatic cases of osteo-arthritis are found among elderly people, and as "malum coxae senilis," and "senile arthritis," are terms still commonly applied to them it is necessary to examine these senile cases a little further. "But what a relative word senility is. In medicine we do not count the ages of people by the revolutions of the earth around the sun, but we measure them by the involutions of their own morbid processes." A man may be prematurely old in his joints as well as in his arteries.

But in spite of the fact that few old people escape a touch of rheumatism in one form or another, there is of course no such condition as a purely senile arthritis. It is true that the bones in common with the other tissues of the body, undergo certain atrophic changes which are part of the normal involuntary process of the skeleton in old age; but in the absence of disease and injury, the bones as a rule retain their general size and form, simply becoming thinner, lighter and weaker. Even the commonly accepted statement that the angle between the neck and shaft of the femur becomes smaller with age, does not hold true of the normal subject, at least this alteration does not invariably take place. At the same time a very slight injury seems sufficient to start an osteo-arthritis in advanced life, as shown by the fact that osseous ankylosis of the vertebrae is often found post mortem, of which no complaint was made during life, so imperceptible was its course. In these senile cases, no doubt other factors beside the excessive reaction to injury, contribute to the hyperplasia, such as the narrowing of the channels which



remove waste products; the affinity of dying tissue for the lime salts in solution in the body, their combination with them, and subsequent organization into bone; and, possibly, the loss of regulative influences on metabolism resulting from sexual decline, a view which receives some support from the fact that in women, osteo-arthritis generally appears about the time of the menopause.

Lastly, to quote the polite intimation in Shakespeare to Jack Falstaff, who can hardly have escaped this disease, considering he had rheumatism, gout, syphilis and several others beside, osteo-arthritis is "blasted with antiquity." Evidences of it have been found in human remains almost prehistoric, and in the bones of animals now extinct. It has also an extremely wide zoological distribution. Blandford Sutton has detected the disease in the joints of a snake's backbone, in birds of various kinds including an ostrich whose neck was affected, in cats, dogs, leopards, lions, tigers, horses, oxen, sheep, kangaroos, bears and many other animals.<sup>54</sup> It has also been observed in the vorqual, a species of whale.<sup>55</sup> The precise cause of the disease in these animals can only be conjectural, but we can be quite sure that it does not depend to any large extent upon habitat, nor can it be due exclusively to any particular form of diet.

Summing up the etiology of the disease, it is evident that whenever the tissues of the joints suffer from some low form of chronic inflammation following disease or injury, or are kept in a continual state of irritation from overstrain or from the presence of foreign substances in the joints, or their nutrition is impaired by some glandular disturbance, then osteo-arthritis may occur. We cannot say it is altogether a disease of toxic origin but as "toxic substances wreak their heaviest vengeance on the joints," it is in those diseases in which toxins are formed abundantly, that we may expect to find osteo-arthritis, and as a matter of fact do most frequently find it.

The point gained in proving osteo-arthritis to be simply a secondary affection, is that by inseparably linking it with the primary condition of disease or injury, a large number of cases of joint disease which at present stand unrelated and in confusion, are definitely grouped, and the classification of joint diseases becomes at once more intelligible and orderly.

**Treatment.—General.**—The medical treatment is that which is appropriate for the primary condition. Whatever source of systemic affection there may be must be removed and the toxins eliminated from the system.

Drugs such as the alkalis are often prescribed in this disease for the purpose of eliminating from the system uric acid supposed to be in excess. They may do good by combating intestinal fermentation, but according to recent researches it is extremely doubtful if they combine with uric acid in the human body as precisely and energetically as they do in the chemical

laboratory. Even if they do, they are only useful in those cases of osteo-arthritis with the gouty diathesis. The salicylates may be given in the rheumatic cases for the relief of pain. Except from the use of mercury and the iodides in syphilitic cases, no drug that the writer is aware of, is capable of reducing to any appreciable extent, the enlarged bones of this disease. Much may be done, however, to check their growth especially in those cases wherein the internal glandular secretions are defective, by giving preparations of the glands which are in fault. The dietary is important. Bezley Thorne, of London, who has had a very large experience in the treatment of this disease, informs the writer that he puts his patients upon what is practically an antidiabetic regimen, and gets good results. Change of climate is often beneficial and a prolonged visit to any of the well-known thermal springs will very greatly improve the patient's general condition.

**Local.**—Many of the cases of osteo-arthritis find their way to the osteopaths whose vigorous manipulations occasionally do good, but often work great harm. It stands to reason that as long as irregular nodules of bone and cartilage are in the course of formation on the articular surfaces of the joints, even ordinary wear and tear, much more the violence of osteopathic exercises, will stimulate to still greater osseous development. In the early stages of the disease, rest and alleviation of pain are necessary. To obtain the former, mechanical measures for the relief of interarticular pressure, and even for immobilization of the joint may be required. Yet this phase of treatment must not be unduly prolonged, or the tendency to permanent stiffness will be increased. As soon as possible after all acute inflammation has subsided, the joints should be given baths of superheated dry air, followed by gentle passive movements of the joint and massage of the neighboring muscles, gradually increasing the range of motion during the exercises, but never so far as to cause severe pain and inflammation.

This form of treatment by improving the nutrition of the joint and removing the morbid products of the disease, often accomplishes a great deal in diminishing the stiffness, pain and general weakness, and the tendency to muscular atrophy.

In very advanced cases, the forcible manipulation of the joint under an anesthetic has occasionally effected temporary improvement, but, as a rule, only in those cases where the stiffness and crippling depended on fibrous adhesions which were thus broken down. It is hardly advisable to attempt in this way to break off the osteophytes and push them out from between the articular surfaces, as such fragments will always be foreign bodies in the joint, and will probably cause irritation. The aim of all treatment must be to check the morbid process, keep the patient comfortable, and secure, as far as possible, freedom of movement in the joints. In advanced



cases the less that is expected, the greater will be the satisfaction with every gain in this direction.

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#### BOVINE TUBERCULOSIS.

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THE exact relation of bovine tuberculosis to human tuberculosis is not yet made out but when this relation has been definitely ascertained it will no doubt be found to be a very close one.

The morphology of the bacilli is practically identical, the bovine bacillus being slightly shorter and a little thicker than that of human origin. They grow on the same media, take the same stains and each produces in many experimental animals the pathological changes common to tuberculosis. Of the two, the bovine bacillus is pathogenic for a wider range of animals than is the human bacillus and the morbid changes which follow its introduction are much more marked and the disease is much more rapidly fatal than is that produced by the human bacillus.

In a number of instances human tuberculosis has been experimentally transferred to cattle and, accidentally, a number of well authenticated cases of bovine tuberculosis have been transmitted to

man. Hence, the two diseases must be held to be identical in man and in bovines, the only differences being those which might be expected in mammals differing so widely from each other.

Personally, I believe that the milk of tuberculous cows is just as dangerous as the sputum of the consumptive patient and that it produces fully as many cases of tuberculosis in man as come from bacilli of human origin; and it is very probable that those cases derived directly from the cow are more rapidly fatal than are those which have for a number of generations been confined to man. In other words, I believe that in the cow we find the natural habitat of the tubercle bacillus.\*

This view is strengthened by the fact that in a very large percentage of the cases of human tuberculosis we are able to trace no source from which the disease has originated. My own records show that in fully one-half of all cases seen there is no history of tuberculosis in the family and the patients have not, to their knowledge, been at any time in close contact with the disease. They also show that there are fully as many cases from the rural districts as from the cities. This would not be likely to be so unless there were some prolific source of infection in the country.

It is estimated that there are in this country not less than 2,500,000 tuberculous cows, and from these, milk, butter and other dairy products are daily distributed to our homes. Of these products, milk is most dangerous as it is used in the uncooked state and is itself a good culture medium for the bacillus.

Milk from tuberculous cows is unfit for use no matter how slightly the cow may be affected and without regard to whether the udder is diseased or not. Of course the more extensive the disease, and the more the udder is involved, the more dangerous the quality of the milk. But if any cow respond to the tuberculin test she should at once be condemned for dairy purposes, as foci of infection may be present in the udder and may not be sufficiently large to be detected by any known methods of examination; nor is it known that milk from tuberculous cows whose udders are healthy is free from bacilli. In fact, the contrary is held to be true. Certain it is that all tuberculous cows are sick cows and no animal is suitable to furnish milk for use that is not in a perfect state of health.

Milk from an infected dairy herd is especially dangerous to children whose diet is so largely composed of this single article of food. It undoubtedly contributes largely to the summer diarrheas which are so common in infantile life and, if the child then escape, it may only be to be stricken down in early life by the same insidious germ which has lain latent for many years.

It is a well-known fact that cattle may be fat and sleek and to all outward appearances in perfect health and yet be perfect hotbeds of tuber-

\* See author's paper "On the Natural Habitat of the Tubercle Bacillus," in *New York and Philadelphia Medical Journal*, Dec. 19, 1903.

culosis. The disease is less rapidly fatal in bovines than in man, probably because the germ is in its natural environment when in the tissues of the cow. Few cattle also are permitted to live sufficiently long to die of tuberculosis; few indeed are permitted to die a natural death from any cause, and not many live to the age of five years. Live stock men who have estimated this percentage for me say that not more than two per cent. of cattle escape the butchers' block.

By the tuberculin test only may it be ascertained whether cows are suffering from tuberculosis and, so reliable is this agent, that all cows intended for dairy purposes should be tested with it by competent veterinarians at least once each year, while all additions to the herd should be tested before being permitted to mingle with the other cows. This will be done only when laws and ordinances require it before milk may be sold to consumers.

There has been an earnest effort on the part of physicians, veterinarians and other well-informed people during the past few years to stamp out tuberculosis in our herds of cattle and especially in those which supply milk to cities and towns, but these efforts have been met in many parts of the country by the most bitter opposition on the part of dairymen and live stock men. It has been feared by them that financial loss would follow should the presence of tuberculosis be found in their herds. A recent experience in this city fully demonstrated the spirit of opposition from these sources. As a result of local agitation, the State Veterinarian of Iowa tested the dairy herds supplying milk to the city of Fort Dodge, a city of some 15,000 inhabitants, and found that 25 per cent. of all the cows in these herds were tuberculous. They were condemned for dairy purposes and an attempt was made to have a city ordinance passed for the purpose of protecting the public against like dangers in the future. Able attorneys, also residents of the city and consumers from the dairies, were employed to oppose the ordinance and it was defeated. The public was wholly apathetic and one dairyman, who refused to have his herd tested, continued in business without the least loss of patronage, although he sold his milk at the same price as those whose herds were now known to be free from disease. Later a local butcher bought the condemned cattle and sold them on the block to the residents of the city. This fact was published by a local newspaper and did not even excite comment. And yet this is a community of average intelligence.

This public apathy presages a long and almost hopeless fight against tuberculosis in our dairy herds. So utterly hopeless was it here that I found it necessary for the protection of my own family to purchase cows for private use.

The flesh of tuberculous animals is less dangerous than is the milk, on account of the high temperature to which it is subjected in cooking. Meat taken raw, however, is but little less dangerous than is the milk, and the high mortality

from tuberculosis among the American Indians is no doubt in large measure due to the inferior quality of the beef supplied to them by the contractors and which is consumed by them largely without previous cooking.

The pasteurization and sterilization of milk have no doubt saved many lives, not only from tuberculosis but from other diseases whose germs find their way into the milk. But the changes produced by heat are undesirable on account of frequent alterations in the taste, rendering it less palatable than in its uncooked state. If properly pasteurized, however, the change is scarcely perceptible. This is, of course, making the best of a bad bargain—doctoring the milk when the cow should be removed from the herd.

Tuberculosis is far less common among cattle on the open ranges than in those confined in barns, a fact which speaks volumes for free ventilation and life in the open air and sunshine.

The problem of bovine tuberculosis, and of a proper milk supply, is one of vast magnitude, involving millions of dollars on the one hand and many lives on the other, and much time and patience will be necessary in its solution. The unfortunate utterances of Koch at the London Congress of Tuberculosis have materially lengthened the time necessary to stamp out tuberculosis in our dairy herds.

#### NEURASTHENIA.

BY JOSEPH N. STUDY, M.D.,  
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THIS name, which describes a group of mental and nervous phenomena, has at the present time, firmly established itself in the nomenclature of nervous and mental affections. The refinement and simplicity of modern times has brought forward this modern name from the various types of mental and nervous diseases.

Only a few years ago, Hammond and a score of other notable writers made no mention of this modern affection. At the present time medical journals are replete with articles upon this subject, and no up to date work upon the practice of medicine, nervous or mental diseases would be considered complete without devoting many pages, and even a whole chapter to its consideration.

Nerve weakness is nothing new, and probably existed in ancient times in some degree or form, and it is not at all improbable, but what all of the various symptoms establishing this new affection can be found under the various mental and nervous conditions.

Berkley says neurasthenia is primarily an affection of the nervous system, and that the disease belongs to the type of degenerative neuroses. That this condition is rapidly growing among all civilized nations is accepted as a truth beyond question. A quotation from Dr. Evarts does not seem to be altogether out of place here, who says, "That there is among mankind at the

present time, a large and increasing proportional number of persons of variously defective and abnormal mental capabilities and dispositions, and whose conditions are not pathological or amenable to medicine." This opinion will certainly be indorsed as true by a large number of observing physicians. As an etiological factor, it has been claimed that modern civilization, higher mental training, the struggle in life for financial and social standing, the many home and family cares, financial failures, and sudden mental and nervous shocks of various kinds, are contributing factors, as well as childbearing in women, and lack of wholesome, nutritious food, alcoholic drinks, syphilis, sexual excesses and masturbation have each and all been assigned as sufficient cause.

Dana says men and women are about equally affected, although he dedicates his chapter on neurasthenia as being synonymous with nervous women. Berkley thinks there is a preponderance of females. The Hebrews are said to be especially prone to this affection, while the Germans and French are much less affected, while the Americans perhaps lead all nationalities. It has been thought that city life, by the various features it presents, adds much to cause this condition, but cases are quite frequently seen in the quiet rural districts. In early life, young children frequently show lack of nervous stability, and in a measure are predestined to such conditions. Such children are prone to have convulsions from dentition, and other trivial causes. They are frequently quarrelsome, and as they grow older, given to various morbid impulses, and when the period of manhood or womanhood is reached, they are not well prepared for the activities of life, and frequently develop into one-sided men and women.

The lack of moral training in childhood, and the proper prompting and toning of judgment upon the developing mind and nervous system, and the want of good, sensible suggestions to the flexible mind, are without doubt factors which contribute to the bringing about of this mental and nervous condition. That heredity plays an important part in this affection in not doubted, and that an unstable, faulty, and defective mind, and nervous system is frequently the inheritance begotten by the union of one or both parents, who are neurasthenic, alcoholic, or syphilitic, which too frequently lies behind the affection to show itself in later years from apparently various and trifling causes. Dana says all women and many men are naturally endowed with a hysterical temperament.

The neurasthenic mind is not always a stupid, sluggish one, but very frequently the reverse. In men the perfect type is most often seen. In women the neurasthenic is often blended with hysteria, melancholia, and other types clinically have been designated as cerebral, spinal, genital, traumatic, acute hystero and gastric. The neurasthenic, like the hysterical mind, is very receptive, and frequently courts sympathy. It is

entirely probable that a healthy, rugged mind and nervous system, in a healthy body, is seldom, if ever upset, even from extreme causes, and when so, it is most easily corrected. Improper suggestions to this class of afflicted people, at various periods of life, either by designing advertisers or not infrequently ignorant people, has something to do in preparing their minds for the final break down.

Too much stress is often placed upon the change of life by overzealous women, and no doubt that this constant looking forward to the inevitable period, when this awful crisis shall come, in some women has no good, but evil effects. Perhaps, too, that physicians have thoughtlessly, and possibly at times for mercenary purposes, suggested and treated this class of women for uterine and sometimes other imaginary difficulties, thereby rendering her a mental invalid, for a portion of her life at least. Organic diseases of the uterus, ovaries and appendages, seldom if ever, produce neurasthenia, unless it be by producing first a state of adynamia.

The conditions which best describe a well-marked case of neurasthenia seldom appear till the period of manhood or womanhood is reached, when the active cares and burdens of life have begun, when they increase up to the fortieth year, and sometimes the fiftieth year, after which cases are much less frequently seen.

The symptoms that the neurasthenic, or nerve bankrupt, may present for consideration are legion, and may almost exhaust the whole vocabulary of medicine, although there are most usually a few ailments that predominate. The vasomotor disturbances of the vascular system, the tumultuous beating of the heart, the dyspepsias, the genital affections and insomnia are among those proving very annoying. General weakness and lassitude are sooner or later complained of by many. The mental depression which frequently is present, has a tendency to diminish all of the secretions, consequently constipation, stomach and intestinal digestion are often complained of. The urine is frequently, but not invariably scant, and the specific gravity is high, and oxalates and phosphates are found in abundance. Sometimes various perversions of the special nerves of hearing, seeing and tasting are present, and the various catarrhal conditions are sources of much dread and fear. And the hyperesthesias and anesthetics are quite common. The various phobias sometimes add to the mental misery, a state of constant fear of various things, impulsive, almost irresistible desire for news, and even to read letters of others has been observed. Imperative, compulsory ideas may present themselves in the course of the daily routine of the neurasthenic, although Metter says there is a marked difference between the imperative conception of a neurasthenic who conceives the idea that he must not cross a certain thoroughfare or street, who laughs at his delusion, in contrast from the imperative conception emanating from



a diseased context to do a certain act which might be the slaying of his fellow-man.

The neurasthenic is not infrequently endowed with a jealous, unreasonable, sometimes a quarrelsome disposition, and from the long lists of tales of woe filed in divorce proceedings in our trial courts, it would not seem at all improbable, but that this class of individuals furnish their full quota.

In the differential diagnosis, the symptom complex of the neurasthenic may closely resemble and mask some very grave mental affections. And the differential diagnosis may require the most careful study and sound judgment. There are certain cases that may require excellent knowledge of the whole field of internal medicine before correct conclusions are reached.

The treatment of the neurasthenic should consist both of moral measures and medicinal remedies. No physician can accomplish much without fully gaining the confidence of his patient, and the physician's ability to restore his patient to mental and physical health will depend largely upon this proposition. The skill and tact and patience to successfully treat this class of individuals, who frequently are fairly shrewd, is fully as great as that required to treat a pneumonia or a typhoid fever patient. Moral treatment should always be enforced, supplemented by therapeutic agents of known value. The bromides sulfonal and trional are frequently used to meet certain indications, as well as strychnine, iron and phosphorus, or the glycerophosphites. Cascara, sagrada and pepsin are useful for constipation and indigestion.

One of the chief aims of the physician should be against polypharmacy, as these people think they need a remedy for every imaginary ailment. The Weir-Mitchell rest cure and massage has been successful in a certain class of cases. Alcoholics in some cases may be of benefit, but their indiscriminate use, as well as that of opium, morphine, chloral and cocaine, should command the earnest consideration of the physician.

Nutrition is frequently below normal, and a plentiful supply of well-selected and properly cooked food should always be insisted upon. Neurasthenic patients frequently drink too little water—an adequate amount should form the daily routine. Electricity in its various forms has not proven a cure-all but in some cases may be of benefit.

There are no pathological findings characterizing this condition. As to prognosis, Berkley says, "Most cases make a partial or complete recovery in five years, and that it is surprising how few of these cases pass into the more serious mental states." It has been my observation, that most all of these people regain their physical and mental status to a greater or less extent. Some favorable cases perhaps make a permanent recovery. Evidently large numbers go through life partial or complete invalids, imbibing patent and other medicines, looking for a cure and an ever-ready victim for the charlatan and patent medi-

cine vendor. There are others who presumably cross the border line of insanity, and are known in their homes as queer or eccentric individuals, or else find a home in some retreat, and it would not be surprising, that not a few end their earthly career by their own hands. The neurasthenic in general terms is an interesting patient, and is at all times worthy of our profound consideration, both as to his physical and mental health.

## MEDICAL PROGRESS.

### MEDICINE.

**Auscultatory Percussion.**—A number of articles have appeared recently in German literature which tend to throw discredit upon auscultatory percussion as applied to the heart. Entirely faulty boundaries are obtained, it is assumed, and the varying tension of the skin will permit the percussion of heart-shaped figures even over other parts of the thorax. A. SMITH and J. HOFMANN (Münch. med. Woch., Dec. 15, 1903) assert that this is due to faulty technic. They have made hundreds of examinations and have controlled the accuracy of the method by means of the X-rays. Considerable experience is required as skin-tension must be carefully avoided; the stroking should be practised with a fine brush, or, better still, with a small drum which is rolled over the chest and to which a brush is attached. Various drugs, warm baths, etc., undoubtedly cause a change in the cardiac contours.

**Albuminuria of Puberty.**—It is not generally known that a large percentage of boys from fourteen to eighteen years of age suffer from albuminuria without having nephritis. F. LOMMEL (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) had the rare opportunity to examine repeatedly over 500 young employees of a large factory and discovered albumin in no less than 19 per cent. In most cases, only traces could be detected, though in a few the amount exceeded 1 pro mill. The greater part of the albumin seemed to consist of globulin as in acute nephritis, indicating the presence of wide meshes in the filtering apparatus of the kidney. The cause of the albuminuria, which generally had an intermittent character and was orthostatic in type was to be found in an impoverished condition of the blood, together with a mild degree of cardiac insufficiency and tendency to stasis, such as is liable to occur during puberty where the rapid growth of the body is out of proportion to the functional powers of the internal organs. In accord with this, dilatation of the heart, tension of the arteries and accentuation of the second aortic sound were frequently noted. The condition is readily outgrown, since it was not found in any of the men above twenty-five years old of the same factory. It is often difficult to distinguish from chronic interstitial nephritis, but the slight amount of albumin, the rare occurrence of casts of hyaline character and the distinct intermittent type speak against the latter. Moderate cardiac changes are of no value as they occur in both.

**Osmotic Pressure of the Blood.**—The osmotic pressure of the blood is a constant factor, expressed by a definite freezing-point and regulated by respiration, metabolic activity and renal excretion. Respiration removes carbon dioxide which normally lowers the freezing-point, and the kidneys excrete certain molecules which would have the same effect. A. LANDAU (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) has studied the congealing point of blood-serum under various conditions, in order to determine to what ex-

tent this may be looked upon as index of renal function. Unfortunately his results tend to minimize the practical importance of cryoscopy. It appears that food has little influence; thus, with a strict milk diet, normal figures were obtained, though the serum was considerably poorer in nitrogen than before. This nitrogen loss depended upon a deficiency of albumin; since albumin, however, consists of very large molecules, no variations in the freezing-point can be expected. After the use of thyroid tablets, the osmotic pressure became subnormal, due to reduction in chlorides, secondary to more active metabolism. In Bright's disease an increased osmotic pressure, manifesting itself in a freezing-point below  $-0.58^{\circ}$  C. seems to point to a retention of excrementitious products, but normal figures indicate renal sufficiency only if the serum is not poorer in nitrogenous substances. Even in uremia and advanced nephritis, cryoscopy may give no clue as to the condition of the kidneys, since a dilution of serum occurs which compensates for any change. This fact will limit the usefulness of cryoscopy in surgery considerably, unless accompanied by a chemical examination of the serum. Occasionally the latter will also yield normal results in nephritis, but here the compensation is perfect. The influence of fever, as in typhoid, pneumonia, etc., is not constant, as the pressure may be normal, increased or diminished without any relation to the nature of the disease. In diabetes, the freezing-point was generally found subnormal, owing to the presence of glucose, acetone and diacetic acid in the serum. In pernicious anemia, the serum congealed at a somewhat higher temperature than normal, owing to larger amount of water present.

**Gastropnoxis.**—A careful clinical study based on 28 cases of this condition has been made by J. D. STEELE and A. B. FRANCINE (Univ. Penn. Med. Bull., Dec., 1903). Their cases have been kept under observation for more than a year and their conclusions have been formulated in answer to two questions: To what extent is gastropnoxis responsible for symptoms? and of what value is prolonged external mechanical support as a means of treatment? As regards the first they find that their cases naturally fall into two divisions, first those in which gastropnoxis is a primary condition and those in which the gastropnoxis is not the main factor in the morbid state. They find that certain cases are relieved so promptly by external mechanical support alone, without any other treatment beyond regulation of the diet, that the downward displacement of the pylorus must be regarded as the primary or at least the principal factor in the causation of the symptom complex. Cases of this character exhibited a moderate diminution of hydrochloric acid secretion, were free from organic disease, and showed no signs of dilatation or impaired motility. The symptoms were those of malnutrition, gastric fermentation, attacks of frontal headache, and sensations of dragging and lack of support in the abdomen. Gastropnoxis may exist absolutely without symptoms. This is shown by the demonstration of downward displacement of the pylorus in the routine examination of other morbid states. Such patients were not benefited by external support, and recovered completely, although reexaminations showed that the stomach was still displaced. Gastropnoxis may form part of the symptom complex of other morbid states, such as neuroses, gastric motor insufficiency and dilatation, and passive congestion of the stomach from weakness of the cardiac muscle. Here the downward displacement of the pylorus is also relieved by a mechanical support. The value of the mechanical support was not exerted in restoring the organ to its normal position as shown by repeated examination after the belt had worn for considerable periods of time. It ap-

parently produced some change in the organ which enabled it successfully to perform its function, although displacement still existed. These changes were probably compensatory in character.

### SURGERY.

**Method of Suturing the Prolapsed Kidney.**—The technic, which has been developed in this very important operation, may now with fairness be regarded as having reached a stable equilibrium. AUGUSTIN H. GOELET (Ann. of Surg., Dec., 1903) states that the essential points in determining success are as follows: (1) The colon must be completely detached from the kidney, so as to obviate subsequent dragging upon it. (2) Reattachment must be prevented. This is accomplished by packing a gauze drain beneath and in front of the kidney and by early evacuation of the bowels. (3) The sustaining sutures must be inserted under the fibrous capsule in a manner to obviate tearing or cutting through that structure when they are tied, and the suture material should be one that is permanent. The suture should not be tied to the muscles, but should be brought out upon the surface of the back. They should not be removed until sufficient time is allowed for firm attachment. (4) The kidney must be restored to its normal position, and should not be attached lower down where it may be compressed by the corsets or other clothing. (5) The detached redundant fatty capsule must not be permitted to come between the kidney and the structures to which it is to adhere. This may occur after closure of the wound, and is another indication for the packing of gauze around the lower pole of the kidney. (6) When both kidneys are operated upon, the patient must be kept strictly on her back during three weeks. When one has been sutured, she should be turned upon the affected side only. (7) The operation is indicated before the patient's health is seriously impaired and before the kidney has become diseased. A vertical incision is made through the skin to the first layer of muscles beginning just below the last rib and extending downward along the outer border of the erector spinæ muscle for  $3\frac{1}{2}$  inches. The latissimus dorsi is separated in the direction of its fibers. The fascia is next divided and the quadratus lumborum exposed. This is drawn inward. The transversalis fascia is next split downward by traction, which avoids wounding the iliohypogastric nerve and vessels. The fatty capsule bulges up into the wound. The kidney can now be located with the finger and delivered. The fatty capsule is opened with scissors and is completely detached from the kidney back to the hilum. The fibrous capsule is not split or detached from the kidney, nor is it scarified. Firm adhesion can invariably be secured if the kidney is held immovably in contact with opposing structures. To accomplish this, silkworm gut is a *sine qua non*. Two sustaining sutures are inserted upon the posterior aspect of the free border. These penetrate only beneath the fibrous capsule and are so placed that when traction is exercised upon them they will not tear out nor give way. The suture differs in several details from the Brodel stitch and is considered by the author vastly superior to it.

**Temperature in Shock.**—Any experimental work which elucidates this little known condition is welcome. GUY C. KINNAMAN (Ann. of Surg., Dec., 1903), from a long and extensive series of experiments, whose scope and number lend particular weight to his observations, concludes as follows: (1) Shock must not be considered as due to the lowering or exhaustion of one bodily function, but as a composite condition embracing an interference with the normal height of the blood pressure with the respiratory act and with a marked fall in the body temperature. That there is a relationship between



the fall in body temperature and shock is evident by considering (a) that in one series, the fall in temperature was the sole cause of shock; (b) that by continuous bath the temperature fell but one degree. The respirations increased, instead of diminishing, and the fall in blood pressure was greatly lessened. (c) That by raising the body temperature previously lowered in shock, the respiratory rate was increased and the blood pressure raised. Of the three factors concerned, the temperature commands the first place by its powers of production, limitation and amelioration of a composite condition—shock.

**Excision of Forty-two Inches of Small Intestines for Chronic Intussusception.**—Not because of the unusual length of gut resected, but on account of the failure of the Murphy button, which would have resulted more disastrously than it did, but for timely interference, is this case one of peculiar interest. F. C. WALLIS (Lancet, Dec. 5, 1903) operated upon a healthy married woman, aged thirty-two years. Previous to May, 1901, she had never been sick. She had never had diarrhea. Her illness began suddenly with a most acute pain in the abdomen, the cause of which she did not know. After a rest in bed there was subsidence of the intensity of the pain, but it was always excited by food thereafter. She described the attack as "a general turning round and round feeling in the stomach, followed quickly by vomiting." She had never passed blood or mucus, and she had about five of these attacks, the more serious ones lasting for about three weeks. At the time of operation, an indefinite mass was felt below and at the left of the umbilicus. The gut removed was all small intestine, and the two ends were united with Murphy's button, reinforcing sutures were put in in addition, every care being taken in the technic of inserting the button. Three weeks after the operation, the patient had an attack of pain similar to that which she had previously suffered from. Chloroform was administered and on palpating the abdomen, the button could plainly be felt in what seemed to be the descending colon. No button was passed and the pains continued. Three days later, under the X-rays, the button was seen to lie on the outer side of the right rectus. On the following day, the abdomen was reopened, and the button found four inches above the ileocecal valve. It was removed through a longitudinal incision. The button was somewhat larger than usual, it having been used because of the dilatation of the proximal portion of the gut. This is an interesting sidelight on the occasional failure of this most valuable device.

**Treatment of Angiomata.**—A simple method of treating this condition is suggested by CARL BECK (Jour. Am. Med. Ass'n, Dec. 26, 1903). He has used it successfully in a number of cases and the method consists in the general principle of transforming the masses of vessels gradually into connective tissue. This is done by a subcutaneous suture as follows: A thread of catgut is passed in a zigzag manner, first below the skin, then underneath the base of the tumor, then again underneath the skin, underneath the tumor, etc., until the tumor mass is included in this continuous suture. The latter is drawn tight and closed at the point of entrance of the needle. In this manner the circulation is shut off within the tumor but no gangrene follows, inasmuch as some blood can yet reach the parts not included in the suture. The mass soon grows smaller and the normal epidermis outside of these limits stretches considerably, but becomes elastic and grows again. This procedure is repeated until the tumor is diminished to the smallest possible nodule of connective tissue. The hard connective tissue masses are then excised and the edges carefully united. This treatment applies to all varieties of hemangioma, but in the ar-

terial and mixed varieties it is necessary to ligate the largest afferent vessels in order to check the rapid growth. In one of the cases he reports being compelled to excise a portion of the common carotid artery.

**Prophylaxis of Gastric Cancer.**—An interesting contribution to this subject is made by W. A. KARZ (Deut. med. Woch., Vol. 29, No. 47). He calls attention to the fact that cancer is rarely found in that part of the digestive tract in which the chyme is of a soft consistency and believes that cancer would become much less frequent if the diet were restricted more to soft foods, as free as possible from solid substances. Thorough mastication should be insisted on, soft foods should be preferred and copious amounts of fluids taken when solid food is being eaten. The author thinks that by approximating the conditions in the stomach to those which exist in the duodenum, gastric cancer will become as much of a rarity as cancer of the small intestine.

**Sterilization of Silk by Diffusion Currents.**—It has been admitted that although water and alcohol have no disinfecting power alone, when one is added to an article impregnated with the other, the diffusion causes currents in and around the bacteria, which kill staphylococci in two minutes. J. AUSIN (Deut. med. Woch., Vol. 29, No. 46) has applied this principle to the sterilization of surgeon's silk. This is first boiled in alcohol, to remove all fat, impurities, etc. It is then set aside to dry and before an operation it is boiled in water for twenty minutes, then placed for five minutes in alcohol, then for five minutes in water and again in alcohol for twenty minutes. He has used this silk extensively and has not had a single case of stitch where it was employed.

**Strangulated Meckel's Diverticulum.**—An instance of this condition as a complication of typhoid fever and believed to be the only one on record, is reported by J. SAILER and C. H. FRAZIER (Univ. Penn. Med. Bull., Nov., 1903). At some time previous to the patient's present illness he had an attack of abdominal pain which was attributed to gall-stones. During the typhoid, symptoms developed which pointed to some acute trouble within the abdominal cavity in the region of the umbilicus. For these a laparotomy was done, when a strangulated Meckel's diverticulum was discovered. The latter was distended and twisted. The base was adherent to the parietal peritoneum. A ligature was thrown around the proximal end and the stump invaginated into the intestine. No perforation was found and the condition of the diverticulum probably accounted for all the symptoms. The patient died eighteen hours later as a result of peritonitis. The authors believe that at the time of the supposed attack of gall-stones a localized peritonitis occurred between the distal extremity of the diverticulum and the wall of the abdomen. Twisting of the former but without complete strangulation. During the typhoid the bacteria must have extended along the mucous membranes of the diverticulum, setting up an inflammatory process, which caused enough swelling to tighten the twists and produce complete strangulation, followed by an exacerbation of the inflammatory process.

**Difficulties of Early Diagnosis of Peritonitis After Appendicitis.**—There is no symptom, says L. MANS-LAIRE (La Méd. Moderne, No. 35, 1903), that will inform us absolutely of the advent of peritonitis after appendicitis. Fever may be altogether absent, while chills are rare. The pulse is extremely unreliable, as it may be normal with pus in the peritoneal cavity, and much increased without this. The facies constitute an important sign but exceptions to the rule are frequent. A tendency to syncope and a change in voice have been mentioned but are altogether too indefinite to decide



so important a point. Of more importance are tympanites and inability to pass gas. The association of certain symptoms may be of some value; these are: changed facial expression, pains radiating toward navel, epigastrium or left and persisting despite the application of ice; dyspnea, restlessness, fall of temperature and a tendency to syncope.

**Value of Blood-count in Appendicitis.**—A severe criticism is carried by L. REHN (Münch. med. Woch., Dec. 15, 1903) against the practice, becoming more and more common, of deciding upon operation in appendicitis, from the number of leucocytes in the blood. If it is certain or probable that the appendix is in an inflamed condition, it should be removed without delay. Daily blood-counts will never give a clue as to the true pathological condition and they may jeopardize the patient's life, as valuable time is lost. Curschmann, who inaugurated the practice, states that more than 25,000 leucocytes indicate pus but Rehn has found that a large abscess may be present both in early and in less recent, progressive cases, with much lower figures.

**After-Treatment of Intra-nasal Operation.**—The pain of these dressings so far exceeds that experienced in the primary operation that from the patient's standpoint a consideration of after-treatment is of great importance. Sir FELIX SEMON (Med. Press, Nov. 25, 1903) believes that tamponage, except in chosen cases, is apt to produce irritation, to cause local anemia of the injured parts and to prevent healing. A spray consisting of three grains of cocaine and half a dram of boric acid in six ounces of water was recommended for the reduction of inflammatory reaction. Tampons for the prevention of secondary hemorrhage are not valuable, since they do not prevent the occurrence of this accident when the tampon is removed the day after operation. In extensive wounds he introduces a strip of cyanide gauze soaked in peroxide. The patient should be directed to apply cold water compresses if bleeding occurs. Deep breathing with the closed mouth may also check hemorrhage. In general the author advises a let-alone policy, believing that the formation of cicatricial bands after operation is rare.

**Diagnosis of Perforated Gastric Ulcer.**—So many empirical rules have been laid down in this important matter that it is interesting to note how, with advance of our knowledge on the subject, little reliance can be placed in them. W. HARLAND PEAKE (Brit. Med. Jour., Nov. 21, 1903) says that for the general practitioner a knowledge of the indications, if any exist, of perforation, are of paramount importance. In considering the question of shock and collapse in association with pulse and temperature, he says that the so-called period of repose, which supervenes soon after perforation and in which the patient feels better, is a reasonably constant factor. Mitchell believes that the shock in these cases is due either to the presence of gas in the peritoneal cavity pressing upon the diaphragm and so upon the heart, or to the disturbance of the great sympathetic ganglia and peritoneum by stomach contents. In support of this theory he has shown that certain cases with a pulse of 140 dropped to 96 and became strong after the opening of the abdomen when the gas pressure was taken off. On the other hand, in cases where little gas was present, the opening of the peritoneum made but little difference to the pulse. Liver dullness is now generally looked upon as an uncertain sign, its absence being frequently due to colon resonance or to a dilated stomach. The paroxysmal pain may persist for as much as 4½ hours after operation. Osler states that early vomiting is a prominent feature. Flagg alleges that it is the earliest symptom of acute peritonitis. Robson says that vomiting with or without bleeding is an inconstant symptom. Finny

finds it recorded in 40 per cent., Fenwick in 29 per cent. Clifford Allbutt says vomiting is generally absent or soon ceases if it occurs at first.

#### **Fracture and Separation of the Lesser Trochanter.**

—A fracture of this character has hitherto either escaped diagnosis or has not been reported, according to CHAS. JUILLARD (Arch. f. klin. Chir., Vol. 72, No. 1). His patient was an old man who sustained an injury which was believed to be a fracture of the neck of the femur. Death from inanition came on shortly afterward and on autopsy there was disclosed a complete separation of the lesser trochanter, together with the iliopsoas muscle. The neck of the femur was intact. The symptoms were localized pain, ecchymosis and swelling, but most marked was the outward rotation of the leg. The author believes that it is impossible to differentiate this variety of fracture from that of the neck of the femur without the assistance of the X-ray. The prognosis, which of course cannot be determined from this isolated case, should be similar to that of fractures of the neck of the femur. He considers that the rational treatment ought to consist of fixation of the thigh in an attitude of flexion and slight outward rotation.

**Forensic Importance of Appendicitis.**—The peculiar course of appendicitis and the sudden development of perforation with fatal issue due to peritonitis, explains why the disease occasionally plays an important part in legal medicine, according to D. KISTER (Friedreich's Bl. f. gericht. Med., Vol. 54, No. 6). A perforation may occasionally lead to a suspicion of poisoning: it may be caused by a rise of abdominal pressure such as follows even slight muscular exertion, where the walls are thin and eroded. Not rarely a distinct relation to trauma exists, so that the question of criminal assault may be an important one, but it must be remembered that an appendicular lesion has always existed. The severity of the symptoms stands in no relation to the degree of force used. Perforation of the appendix in suicides is rare.

#### **HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.**

**Primary Intestinal Tuberculosis.**—Koch has recently made the statement that the intestines are very rarely affected primarily by tuberculosis and others have analyzed many cases and have come to the same conclusions. These conclusions are, however, erroneous according to O. WAGENER (Münch. med. Woch., Dec. 1, 1903), since based upon the autopsies of adults. He examined the intestines and their mesentery of a large number of children who had died of some other disease and found tuberculous ulcers and cheesy mesenteric glands without other tuberculous foci in the body in as high as 21.1 per cent. In over three-fourths of these the specific stain for tubercle bacilli was positive so that there can be no doubt as to the nature of the lesion. In performing the autopsies, it is advisable not to sever the intestines from the mesentery, as small glands may be overlooked. Glands without ulceration in the intestines were never found.

**Filariasis Cured by Removal of the Adult Worms by Operation.**—This disease is extremely rare in this country and in Canada. A. PRIMROSE (Brit. Med. Jour., Nov. 14, 1903) states that the embryo filariae were first discovered in 1863. Bancroft found an adult worm in an abscess in a lymphatic gland of the arm in 1876. As early as 1877 Manson suspected the mosquito as playing the part of the intermediary host. In 1879 he demonstrated the life history of the parasite in the body of the mosquito. From further investigation it appears reasonably certain that the infection is communicated to man by the bite of the mosquito. On the west coast

of Africa, as many as 50 per cent. of the inhabitants are infected, but curiously enough it is rare to find these individuals ill. Nevertheless, occasionally the adult worms block the lymphatics. The embryo, too, may be responsible for these conditions, but under usual conditions they circulate freely in the blood and cause no disturbance of function. If, however, the parent worm be injured immature ova may be discharged in large quantities into the blood. They do not circulate as freely as the matured ova. They block the circulation and give rise to characteristic lesions. The case operated upon had the following history: It was that of a man forty-seven years of age, who had lived in Barbadoes all his life. In 1881, he was operated upon for what was thought to be hydrocele. Both sides of the scrotum were tapped and iodine injected. This apparently cured the condition. In 1884 he suddenly became seriously ill with fever and swelling of the leg. Two years later he had a similar attack. These attacks continued until the present date, but the period between them became progressively shorter. He had been infected for about twenty years. The scrotum was about three times the normal size, the amount of thickening being marked and permanent. The blood showed the characteristic signs of filariasis, one cover-slip alone showing 20 embryos. The specimens were withdrawn at night. The greater part of the indurated scrotum was removed, two lateral flaps of scrotal tissue being left. No ligatures were required. The wound healed without trouble. One parent worm, which looked like a piece of animated white thread about 6 cm. long was removed from the tissue. In salt solution it remained alive for some hours. Forty-six days after operation the patient developed elephantoid fever. A swelling developed in the neck which was incised and drained. Subsequent examination of the blood showed it to be absolutely free from infection six and a half months after operation.

**New Reagent for Acids.**—A reagent, appearing to be the most delicate as yet discovered for acids, is described by M. HEIDENHAIN (*Munch. med. Woch.*, Nov. 24, 1903). It is the base of the aniline dye, nilblau, and is prepared from this by dissolving in alcohol and shaking with lime. The slightest trace of carbonic acid will at once turn this bright red fluorescing solution blue, and it is only necessary to blow gently upon its surface from a distance, to observe a beautiful play of colors. The atmospheric air, alcohol and even distilled water will be found to react acid with this base.

**Etiology of Beriberi.**—In the government asylum at Singapore the deaths from beriberi average 45 per annum, and the number of cases treated about 150. This was between 1887 and 1900. Since that date the disease has been nearly stamped out. W. G. ELLIS (*Brit. Med. Jour.*, Nov. 14, 1903) states that by thorough cleansing and disinfection and the construction of two wards on the sea-beach four miles from the city, which have been used as isolation centers, the disorder has almost ceased to exist. The most important mediums used for disinfection are sea water, sand and sunshine. All the patients are bathed for at least half an hour daily and are kept out of doors all the time. They are freely massaged and are given strychnine, iron digitalis, and purgatives. All the patients are fed on Siamese rice. Thirteen years ago he separated 20 healthy native patients, giving them European food exclusively and no rice. In less than three months half the cases had developed beriberi. He then concluded that the disease was a place disease; that the soil and buildings were infected, and that this poison was the cause of beriberi. Siam rice is not the cause of the disease, as is shown by the fact that some time ago on a well-found steamer

carrying 28 Malays and 51 Chinese hands, all of whom were fed on Siam rice, beriberi broke out among the Malays. Had the rice been in fault it is difficult to understand why the cases which broke out should all have been located in one cabin, as they were, and why the remaining 65 hands should all have entirely escaped. The conclusion is that rice has nothing whatsoever to do with the disorder and that it is purely of an infectious origin.

**Elastic Tissue of Liver in Infectious Disease.**—T. MIRONESCU (*Virchow's Archiv*, Vol. 174, No. 2) finds that in hepatic tuberculosis the elastic fibers may or may not be destroyed, depending on whether or not an exudative process is present. In hepatic syphilis there is a new-formation, in erysipelas a destruction of elastic fibers. In all other acute infectious diseases studied the changes were slight or absent.

**Melanin and Glycogen in Melanotic Tumors.**—In a number of non-melanotic malignant tumors, glycogen was found by D. HELMAN (*Arch. internat. de Pharmacodyn. et de Therap.*, Vol. XII, fasc. III and IV) in such large amounts that the quantity could be readily estimated. A series of melanotic tumors was then examined with negative result. The amount of melanin was occasionally very high (7.3 per cent.), but the metastases often contained less than the primary tumor. The pigment does not seem to be constant in composition, for sometimes both iron and sulphur were present, while at others, only one of these elements. In general, four classes of pigment may be recognized, viz., physiological melanin, occurring in negro skin, the choroid and hair; pathological melanin of malignant tumors; artificial melanin resulting from the action of mineral acids on proteids and pseudomelanin, such as formalin pigment, the pigment of anthracosis and siderosis, etc. Microscopically the second class occurs in the form of amorphous, dark-brown granules, both in the cells and the connective tissue. The tumors are especially malignant and generally start from normally pigmented sites, though there are cases on record where the primary growth was free from pigment and the internal metastases rich in melanin. Some consider the tumor-cells epithelial in character, others believe them of endothelial origin and a marked difference of opinion also exists as to the relation of the pigment to hemoglobin. Since, however, dark granules often occur in the embryos of the lower animals and albumin can be converted into a dark mass by prolonged boiling, the presence of blood is probably not necessary. The pigment-formation is connected intimately with the functions of the suprarenal gland, which modifies the albumin so that it can be deposited as melanin in other parts of the body. The relation between glycogen and melanin is not clear but possibly the former enters into the molecule of the latter. Patients suffering from melanotic tumors often discharge a urine containing the mother-substance, melanogen and turning dark on exposure. Chloride of iron, bromine water and chromic acid will here give a black precipitate which does not, however, occur in all cases nor is it specific for melanotic tumors, since it is also found with ochronosis. Sodium nitroprussiate, potash lye and acetic acid often causes a blue discoloration which is still more inconstant. In the final stages of diabetes, the urine sometimes reacts positively, though melanotic tumors are not present. The melanin tests are of absolute value only where a melanotic tumor has been extirpated and melanuria persists or appears soon after, when a metastasis is certain. Melanin introduced subcutaneously is completely reduced by the organism, especially by the hepatic cells, so that it cannot be detected in the organs microscopically. For-



eign melanins, such as sepia and the coloring matter of peat, behave similarly. They are hardly toxic, except in very large doses, when convulsions appear in frogs and general asthenia in higher animals. Absorption does not take place from internal administration and injections are not necessarily followed by disappearance of glycogen from the liver.

**Extra-uterine Malignant Deciduomata.**—The history and pathological findings of the two cases observed by O. BUSSE (Virchow's Archiv, Vol. 174, No. 2) are interesting in that they prove that malignant deciduomata may also occur in places other than the uterus. The first patient was seized two weeks before death with severe headache, gastric symptoms, lassitude and cardiac pain and coma; involuntary discharge of urine and feces and facial paresis soon followed and one-half of the body became anesthetic and the seat of peculiar vasomotor disturbances. This vague symptom-complex was only cleared up at autopsy when it was found that both small and large vessels of the brain were completely occluded by emboli of varying date which had caused extensive softening of cerebral tissue. The cause of the emboli was a large tumor situated in the left ventricle of the heart which was made up of elements found only in malignant deciduoma. While most other organs were also riddled with metastases, the uterus was entirely free from pathological lesions so that the cardiac tumor must be looked upon as primary. The case is difficult of explanation but since there was a history of pregnancy five months before the onset of the illness, it is possible that portions of the placenta were torn off and carried to the heart where they were arrested by the slowing of the blood-current due to a beginning syphilitic myocarditis. In the second patient the malignant deciduoma had developed in the right parametrium and posterior wall of the vagina; the uterus was also free. At present, only sixteen cases of extra-uterine deciduomata are reported in literature; in most the primary tumor was seated in the vagina and metastases had formed in the lungs and brain. The mucous membrane of the uterus frequently swells like in extra-uterine pregnancy, but it is difficult to say if this depends upon chemical or reflex influences. The author does not share the common belief that metastases may disappear after extirpation of the primary tumor.

**Tumors of Gärtner's Canal.**—In the lower part of the cervix uteri, Gärtner's canal possesses a dilated portion which begins to branch in the later fetal months. This portion is homologous to the male ampulla of the vas deferens but never possesses a pouch corresponding to the seminal vesicles. The difference in form between male and female ampulla is probably due only to mechanical causes since the firm cervical tissue restricts development. The most common tumors, according to R. MEYER (Virchow's Archiv, Vol. 174, No. 2) are adenomatous in character, taking the form of small, narrow canals and vesicles at the ends of the lateral twigs. They may be present at birth and are generally without significance. Most cases of cervical adenomata which do not start from the mucous membrane, belong to this class. Occasionally the surrounding tissue participates and the tumor has more the character of an adenomyoma. Malignant tumors are exceedingly rare; in fact the author's case is the first instance of carcinoma on record.

**Nature of Blood-Plates.**—When fresh blood is allowed to mix with concentrated solution of corrosive sublimate, the red corpuscles will develop a number of protuberances which closely resemble blood-plates and are by many considered identical with these. P. SCHNEIDER (Virchow's Archiv, Vol. 174, No. 2) concedes that both structures are very similar in morphol-

ogy and in their relation to certain dyes, yet the plates cannot be looked upon as forming from the erythrocytes, since the former are not affected by 5 per cent. acetic acid, while the latter readily dissolve. The plates consist almost entirely of nuclear substance, while the red cells contain only traces of this in their stroma. It is still possible, however, that physiologically certain portions of the erythrocyte are extended and then undergo chemical changes, so that the experiments are not conclusive. Ameboid movements and nuclear substance do not absolutely prove the independent cellular nature since cell-extensions may develop both.

**A Rapid Method of Imbedding and Hardening.**—The modification of the Lubarsch method proposed by A. STEIN (Deut. med. Woch., Vol. 29, No. 44) is as follows: The tissue is placed for five minutes in 10 per cent. formalin, for the same time in 95 per cent. alcohol, then ten minutes in absolute alcohol changed once, finally fifteen to twenty minutes in anilin oil until entirely cleared. These procedures are done in the incubator at a temperature of about 50° C., which is now increased to about 60° C., while the specimen is placed in xylol for 15 minutes, changing the fluid several times, and finally in paraffin for ten to thirty minutes. The entire process takes less than 1½ hours. It is applicable to sections not more than 3 mm. thick.

**A New Cervical Dilator.**—One of the chief criticisms to be made of the Bossi dilator is that its mechanism is very complicated and so many levers and screws are necessary in its construction that it is practically impossible to take it apart for cleaning. F. A. HIGGINS (Jour. Am. Med. Ass'n, Nov. 28, 1903) has devised an instrument which it is claimed overcomes these objections but yet retains one of the best features of Bossi's instrument, the removable tips. This admits of an instrument with a small point for use at the beginning of dilation. The dilator in question has five blades, the tips of which are made to spread by an advancing cone moved by a screw and a handle. The parts are limited in number and can be readily separated for cleansing purposes. The reason for using five arms is, that in this way the pressure is better distributed, no two arms coming directly opposite to each other. It may be necessary to precede the use of this instrument by the introduction of a moderately sized Hanks dilator and aside from its employment in obstetrics he has also found it of value for dilatation for curettage.

**Action of Diphtheria Toxin upon Circulation.**—According to K. R. v. STEJSKAL (Zeitsch. f. klin. Med., Vol. 51, Nos. 1 and 2) the poison of diphtheria acts upon the vessels as well as the heart. With the latter there is first an irritation and then a paralysis and general disturbance of the nervous mechanism; with the former a decrease in tensions developing to a complete paralysis, takes place. Both actions are simultaneous and independent of each other. The period of latency and degree of toxicity depend upon the size of the dose and also upon the individual resistance of the animal. If an animal is in poor condition, a normally non-toxic dose, will readily kill. The vasomotor paralysis will only react upon the heart to a slight degree in that the coronary vessels are less filled with blood; the anemia of the respiratory center is, however, of more important consequence than that of the heart muscle.

**Long Bacilli of Gastric Cancer.**—If the stomach-contents of cases of carcinoma of the stomach be examined, the characteristic long bacilli will often be found in nearly pure cultures. This G. SANDREAS (Zeitsch. f. klin. Med., Vol. 51, Nos. 1 and 2) attributes to a special resistance of the germ toward high percentages of lactic acid, which inhibit the growth or destroy all the other organisms in the stomach except yeast. When grown on acid-free media, short rods are



usually obtained, but as soon as other lactic acid producing bacilli are present or they themselves are able to produce lactic acid, then length increases materially. Both long and short forms give characteristic colonies, but one may be changed into the other by modifying the conditions of growth and transition forms are common.

### OBSTETRICS AND GYNECOLOGY.

**Extra-uterine (Ovarian) Pregnancy.**—Of the extra-uterine pregnancies those of the ovarian variety are comparatively rare, and Schrenck found in 610 cases of extra-uterine pregnancy but 4.6 per cent. of ovarian cases. G. I. OLECHNO (Roussky Vrach, Oct. 25, 1903) describes an interesting case of a woman, a primipara, aged twenty-five years, who asked for admission to the hospital because of a severe hemorrhage of three weeks' duration. Examination of the abdomen elicited a somewhat tender swelling, the dimensions of which could not be clearly made out on account of the woman's greatly developed adiposity. The uterus was in its normal position, and the size of a lemon, soft, and admitting freely a sound for 14 cm. The tubes were felt slightly enlarged; to the left and behind the uterus was a movable, slightly tender swelling, the size of the fist. A diagnosis of extra-uterine pregnancy was made, and a laparotomy was performed. A dark-red tumor, somewhat adherent to the broad ligament, was found in Douglas' cul-de-sac. The left tube was seen at its entire length, its fimbriated extremity grown to the antero-superior portion of the swelling. This last was separated from the surrounding adhesions and removed. As the right tube was also found to have undergone some changes, part of it was excised, the cul-de-sac was cleared of the clots, the wound closed, and a sterilized tampon placed in the vagina. Recovery was uneventful. The tumor contained a fetus with clearly demonstrable extremities. Its upper wall contained a hard body, which in its consistence and form felt like an ovary. The ovarian ligaments were not evident. With the pregnancy there was also a right hematosalpinx which escaped the notice of the examiner before the operation.

**The Physical Chemistry of the Blood in Pregnancy, Parturition and Puerperium.**—During pregnancy there is a rise in the freezing-point of the serum, according to G. FARKAS and E. SCIPIADES (Pflüger's Archiv, Sept. 8, 1903), which indicates a decline of molecular concentration. Following labor the serum reaches or exceeds the normal average concentration. During the above three periods the electric conductivity of the serum is subject to no variation, which indicates a uniformity in the concentration of the electrolytes. Toward the end of pregnancy and during parturition the concentration of the non-electrolytes, excepting albumin, which corresponds to the organic non-albuminous constituents, suffers a reduction. The content of albumin and chlorine show no change. The authors find that the amniotic fluid is a hypotonic fluid containing traces of albumin, and is no simple transudate of the blood.

**Fibromata of the Anterior Abdominal Wall.**—Two kinds of tumors are usually encountered in the anterior abdominal wall, solid and cyst-like. But in general these swellings are rather rare, and especially so the fibromata; even very active surgeons can boast of having met but few of these. As an example M. N. POROSHIN (Roussky Vrach, Oct. 4, 1903) cites such a celebrity as Billroth, who, during a most prolific practice of twenty-three years in Zürich and Bern, altogether saw between 15 and 20 cases of tumors of the anterior abdominal wall. The case reported by the author was that of a peasant woman, of twenty-eight years, who had the tumor in the abdominal wall for the last seven months. The swelling began to grow rapidly, especially since pa-

tient became pregnant; she aborted on the fourth month. A laparotomy was performed, and a tumor weighing 500 grms. and of soft consistency was removed. Microscopically it proved to be a soft fibroma, which is also known as a dermoid tumor.

**Pelvic Exudations.**—More than 80 per cent. of these cases are due to childbirth, according to the statements of E. C. CARMICHAEL (Brit. Jour. of Obstet., Sept., 1903), and the remaining cases result from surgical operation. Exudations are most common in the lateral parametria, more especially the left, but are liable to spread to and involve the other parametria, showing a tendency to limitations along certain lines as some anatomical observations might not lead us to suppose. The majority of the cases no longer suffer from fever when they are admitted to the hospital, and the presence or absence of this symptom is not a definite indication of the appearance of suppuration. The presence of a leucocytosis affords us a more reliable means of diagnosis as to the presence of pus, and if the leucocytes steadily increase, on repeated examination, and especially if they reach the number of 20,000, or over, surgical interference is justifiable. The majority of pelvic inflammations are cured by absorption or by suppuration. The most frequent cause of suppuration is the *Streptococcus pyogenes*. The hot air treatment has proved a very valuable addition to the treatment of this condition, more especially in large and chronic exudations, or in those patients where pain and discomfort result from cicatrices and thickening in the parametria, the remains of former inflammatory exudates. The chief contraindications to this treatment are fever, menstruation, and heart disease.

**Müller's Operation for Uterine Prolapse.**—Briefly stated, colpectomy, as described by Peter Müller, consists in excising the whole vagina and columnizing its bed, but—and this is the original feature in the operation—leaving the uterus behind intact. The idea, says R. P. KÖNIG (Brit. Jour. of Obstet., Sept., 1903), is to form compact cicatricial tissue in place of the vagina, on top of which the uterus is firmly imbedded, in its normal situation. Colpectomy can be done without general anesthetics in the vagina, being rendered insensible by Schleich's infiltration. The whole operation may be performed in ten or fifteen minutes. Müller advises that the older women be permitted to get out of bed as early as the fourth day to avoid any possibility from hyperstasis. The results of the operation are excellent. The author had not seen or heard of a relapse. The advantages of the operation are obvious: (1) The peritoneum is not opened, neither the bladder nor rectum is at any time endangered. There is very little traumatism and that not sufficient to produce shock. This then gives the maximum of safety. (2) It is a simple operation, the technic is not difficult, and the time consumed in performing the operation is short. (3) Anesthetics may be dispensed with. (4) Rest in bed for a few days is all that is necessary. (5) Recurrence is impossible.

**Diabetes as Complication of Pregnancy.**—A résumé of the cases in which this condition developed during pregnancy has been made by ALFRED STENGEL (Univ. Penn. Med. Bull., Oct., 1903), who also reports a case seen by himself. He has been able to collect 19 undoubted cases, with the diabetes present 27 times. It may have its onset in the first or in subsequent pregnancies. There seems to be a tendency to recurrence of the condition when it has been once established and the onset is apt to be early in the pregnancy. The symptoms are about the same as those in ordinary diabetes, the conspicuous ones being polyuria, increased appetite and thirst, weakness, loss of weight, boils and pruritus vulvæ. The author believes that the serious aspect of the prognosis has been magnified—among these cases 13 preg-

nancies terminated normally as far as the child was concerned, the remainder being miscarriages or dead fetuses. The maternal results show that in 27 pregnancies 17 terminated in normal recovery of the mother, in 5 death occurred soon after labor, and in the remaining 5 death occurred from diabetes or other causes within some weeks or months after the delivery.

#### Embryotomy as Applied in Transverse Dystocia.—

A method which is applicable in cases where the neck cannot be reached, and therefore decapitation is impossible, is proposed by L. A. HERRING (Medicine, Nov., 1903). He has used it with success in those cases where the shoulders lie deeply, the trunk is impacted and uterine rupture is imminent. The instruments required are a few bullet forceps, volsella, and a strong, straight episiotomy scissors. The fetal thorax is seized with two forceps placed side by side as it presents at the uterine orifice—if the arm is prolapsed or is in the way it may at once be amputated at the shoulder. The thorax is now opened in one of the intercostal spaces between the applied forceps and the latter reapplied so as to include the entire thickness of the wall. After enlarging the opening thus made, the heart and lungs are seized with a volsella and removed by a twisting motion. The lateral incision is then carried backward until the spinal column is reached and cut through with the scissors. The hollow body of the fetus can now be made to sink downward so that all further manipulations may be made in the vagina. The entire thorax can now be cut through and then the two parts of the fetus may be readily extracted—first, the upper half and then the lower. The author claims that the procedure is not difficult and does not require any great amount of skill, and among the advantages is the fact that the hand need not be introduced into the overdistended cervix and add to the danger of uterine rupture. Moreover, when rupture is threatened, evisceration, according to the technic given, can be accomplished with much less intra-uterine manipulation than can version followed by extraction, there is no remaining head to consider after removing the trunk, as in decapitation, and owing to the exhausted condition of the patient, anesthesia can be dispensed with.

**Volvulus in Pregnancy.**—In case of sudden collapse during parturition, one must not lose sight of the possibility of volvulus. Where the ascending colon has an abnormally long mesocolon, this part of the intestine will often be displaced upward by the growing uterus. With the first pains the uterus will become erect and will cause the transverse colon to fall over the ascending portion. In the patient of F. FROMME (Münch. med. Woch., Oct. 20, 1903) the collapse was so sudden in onset that death set in shortly after forcible delivery.

**Puerperal Streptococcus Infection.**—The question as to whether the streptococci obtained from the genital tracts of pregnant and non-pregnant women are capable of producing septic infection during the puerperium, is still in abeyance. A confirmation of the view that the streptococci obtained by culture from the vagina and those from the blood of a patient with puerperal fever, are the same, might be obtained if both varieties showed similar behavior in cultural and animal experiments. A. RIELANDER (Zeitschr. f. Geb. u. Gyn., Vol. 49, No. 3) obtained cultures from two cases of puerperal infection after abortion and found that even large doses injected into animals manifested a very slight degree of virulence. Both patients were very ill, however, and in one case the woman died. In their cultural and morphological relations the species seemed to be the ordinary *Streptococcus longus*. These experiments prove that the streptococci found in the vagina, which are apparently harmless and do not produce pathological changes in animals, may under cer-

tain circumstances, at present unknown, result in severe infection of the human organism. This change may be due to growth with other bacterial varieties or to change in the soil on which they grow that offers a more favorable culture medium for the development of increased virulence.

#### The Mechanism of Posterior Occipital Positions.—

The following is the mechanism thought to take place in these cases by W. B. GOSSETT (Am. Jour. of Obstet., Oct., 1903). In the R. O. P. position the occiput is directed toward the right sacro-iliac synchondrosis, the forehead toward the left acetabulum, the occipitofrontal diameter offering in the right oblique of the pelvis. The occipitofrontal diameter being longer than the right oblique of the pelvis, there is first flexion to allow the head to enter the brim, substituting the suboccipitobregmatic diameter of the head for the occipitofrontal. The force of the uterine contraction is transmitted through the vertebral column to the short pole of the fetal head, the occiput, so produces more flexion of the head. The head descends and the occiput, being the most dependent part meets the resistance of the pyriformis muscle and the soft parts as soon as it enters the brim. This resistance in the great majority of the cases (about 96 per cent.) starts the rotation of the occiput to the front, it rotating away from the point of resistance to that part of the pelvis where it has the least resistance, that is to the right and forward. This is the beginning of the second step of labor in R. O. P. position with a favorable termination, that is the rotation of the occiput through three-eighths of a circle to the front. The resistance of the pyriformis muscle and soft parts is sufficient to cause the occiput to fall in front of the dividing line of the two inclined planes that is a line drawn from the tip of the ischium to the ileopectineal eminence, and in front of the spine, so the resistance of the tip is back of the occiput, and the occiput rotates along the right anterior inclined plane and under the symphysis. If the resistance of the pyriformis muscle and soft parts is not sufficient to start the rotation of the occiput to the front, then the occiput will pass on down and fall behind the ischial spine and onto the right posterior inclined plane, following its direction, which is downward, backward and inward, to the hollow of the sacrum. The author does not believe that the occiput ever rotates forward after it passes posteriorly to the spine of the ischium. After it gets back of the spine it is hard to understand how it will rotate beneath the spine and to the front, or what will cause this rotation.

**Treatment of Perineal Lacerations.**—K. HEGAR (Münch. med. Woch., Nov. 3, 1903) speaks strongly against the firmly-rooted custom of suturing tears at once or soon after the termination of labor. An analysis of a large number of cases proves that post-partum fever is more common in these cases and removal of the stitches will often be followed by a rapid fall of temperature. Waiting twenty-four hours is still worse since the lochia are more infectious and the patient is disturbed in her much-needed rest. It is not commonly known that the functional results are excellent in 77 per cent. of the cases where healing is left solely to nature. Sometimes the wound-edges are not accurately opposed, leading to slight distortion which does not interfere in any way. Suturing may, however, be done where the wound is simple and without contusion or infiltration, where the general condition is good and strict asepsis can be practiced. In other cases it is better to wait three months.

**Pernicious Vomiting.**—This is fortunately a rare complication of pregnancy, says ROBERT JARDINE (Brit. Jour. of Obstet., Oct., 1903). Many theories as to the causation of pernicious vomiting of pregnancy have



been propounded, but the etiology of the condition is still very obscure. The displacement theory of Graily Hewett has never recommended itself to the author. Many cases of displacement of the uterus have come under the author's observation where there had never been the slightest vomiting during the whole of the period of the pregnancy. The author is becoming more and more convinced that the true cause is a toxic one, and the poison, whatever it is, acts through the nervous system. The cause surely lies in the uterine contents as the sickness disappears as soon as the uterus is cleaned out. When once thoroughly understood, the tissue metabolism that occurs during gestation, the etiology of pernicious vomiting and of eclampsia will in all probability be made clear. In the treatment of the condition, medicinal means should have a fair trial. Rectal feeding is certainly of great use. When everything is rejected, rectal feeding should be given for ten days or a fortnight. To relieve the thirst, saline injections, given high up in the bowel, or subcutaneously are of great assistance. If the condition is a toxic one saline injections should be useful. After the stomach has had a thorough rest for a fortnight, small quantities should be tried by the mouth. If this is rejected, one must then seriously consider the advisability of emptying the uterus; to delay until the patient is exhausted, is merely to court disaster.

**Native Obstetrical Practice in China.**—Obstetrical practice is mainly in the hands of ignorant and dirty midwives and nearly every case one meets in practice has been mismanaged by the attendant. Gynecology is on the other hand, undertaken by the native medical man, who is, according to the European ideas, merely a quack. The Chinese do not require their doctors to qualify or take a degree, and often they are quite illiterate men. It is needless to say, remarks AGNES COUSINS (Brit. Jour. of Obstet., Oct., 1903), that vaginal examinations are never made by the native doctors, and the hopelessness of treatment is further increased by the seclusion of the patient. Diagnosis is often made by the pulse, of which the Chinese aver that there are six at the wrist. The midwives are usually of the very lowest class, so much so that the descendants of a woman engaged in this work are not permitted to take a degree, and are therefore debarred from taking office for three generations. A practice is often handed down from mother to daughter and so on. Ordinary cleanliness is unthought of. Puerperal fever is common. The months of pregnancy are usually reckoned as ten by the Chinese. The mother takes no special care during this time and abortions and miscarriages are very common. They do not retire to bed at such times, consequently the hemorrhage is sometimes alarming. If the patient grows faint with it the friends will put her to bed but prop her up, so that the poor woman is made to sit as nearly upright as possible to prevent the discharge gravitating upward to the heart. Treatment is to give native hemostatic, purgatives, or apply counter-irritation to the abdomen. As labor advances, the patient is usually propped up in a squatting position with the buttocks resting just on the edge of a bed or chair (which are always low), her thighs are supported on the knees of two women sitting on either side, and often her arms rest on their shoulders. A third woman from the rear puts her arms on the patient's abdomen, and with the pains makes pressure downward and backward in an effort to express the child. Meanwhile on the floor, and between the patient's knees, which are widely separated, is a stool and on it, a receiving bath, in front of which the midwife kneels. She endeavors to stretch the vagina by inserting her fingers and pulling the walls apart, much in the same way that one dilates the sphincter ani with

the thumbs before operating for hemorrhoids. If there is delay at the outlet, native drugs are given to cause relaxation of the perineal structures. Sometimes, however, they apply counter-irritation to the vestibule and clitoris instead of giving drugs. This is done either by selecting a sharp fragment of a broken basin, and using it to scarify the part, or by inserting red hot needles. Very few of the women suffer from varicosity of the veins. Owing to the practice of binding the feet the lower extremities are poorly developed, and probably the blood supply to the parts is small. There are among the midwives and native practitioners those who venture a crude embryotomy. Rupture of the uterus is by no means uncommon, neither is it always fatal. As a rule, as soon as the labor is over the patient lies down in bed, but with the head and shoulders bolstered up very high, this with the idea of quickly draining away the lochia. The patient is given a drink of syrup, often with hard-boiled eggs floating in it—a dreadful decoction, of which all friends and visitors are expected to partake. The women often sit up on the day following delivery.

**Abdominal Hysterectomy.**—In setting forth the advantages of bisection for removal of the uterus in almost all conditions where total ablation of the uterus is indicated, H. A. KELLY (Brit. Jour. of Obstet., Oct., 1903) gives the following advantages of his method of operating: (1) By shortening the period of enucleation, and so bringing the operation to the point of closing the peritoneal and abdominal wounds; (2) by the newer methods, the great uterine vessels, whose control constitutes the chief step of the operation, are promptly secured, and thus any dangerous hemorrhage avoided; (3) by the removal of the uterus, abundant room is afforded to deal with the adherent tubes and ovaries; (4) abundant light is also shed upon the field of operation, and every step can be followed in all its minutest details; (5) new avenues are opened up for releasing the adherent structures from below, from the front or behind, instead of simply working from above as formerly; (16) it is also possible, with greater precision and security, to pack off the diseased structures, sequestering them from the general abdominal cavity.

**Retroversion in the Gravid Uterus as a Cause of Acute Cystitis.**—Instances of backward displacement of the gravid uterus are numerous, and there is seldom any difficulty in dealing with this complication. From a clinical standpoint, M. HANDFIELD-JONES (Brit. Jour. of Obstet., Oct., 1903) holds that the cases one sees in private practice may be divided into two groups: (1) Those cases which are serious and urgent and where symptoms present themselves suddenly and (2) cases in which pressure symptoms, due to incarceration of the growing uterus slowly and gradually manifest themselves. There is comparatively little opportunity of a mistake arising in either diagnosis or treatment in the first class of cases, but in the second group there is a much greater likelihood of complications arising, since the patient may be slow to appreciate the gravity of her symptoms, owing to the gradual way in which they have developed, and secondly, the doctor, may look upon the case with less anxiety, because there has been at no time an alarming onset of symptoms.

**Diseases Cured by Stem Pessaries.**—Thirty years ago we occasionally used stem pessaries for the cure of retrodisplacements but in the course of time, they were discarded because of the danger in their indiscriminate use. J. H. CARSTENS (Am. Jour. of Obstet., Nov., 1903) believes that there is still a field of usefulness that this instrument can enter with safety. In cases of infantile uteri it has proven to be of use in the stimulation of this organ to greater development. The



theory advanced by the author is, the uterus is stimulated and congestion produced and also that the nutrition of the whole pelvis is thereby benefited. The muscles of the uterus are exercised just as those in any part of the body are by the constant effort of the uterus to expel the pessary. Thus the uterus is enlarged and at the same time, it is straightened and the menstrual flow is permitted to pass out unobstructed from the body of the uterus. The greatest trouble is to keep the pessary in the uterus. And for this the author advises the use of the Chapman pessary, made of hard rubber, which can be easily sterilized by boiling. The author takes his patient to the hospital and prepares her as for any other operation. The pessary is introduced, and the patient is kept in bed for one or two days. Then he allows her to get up and walk around, and in three or four days she can leave the hospital and attend to her usual vocation. No after-treatment is necessary, not even hot douches. The author recommends this plan of treatment in the following kinds of cases: (1) Infantile and poorly developed uteri; (2) amenorrhea; (3) scant or irregular menstruation, as is found in fleshy women; (4) simple cases of retroversion, as is found in young girls; (5) cases of stenosis or tortuous uterine canal; (6) the stem must be worn at least six months. A year or even two years is better. If at any time irritation is produced, the pessary can easily be removed.

#### THERAPEUTICS.

**Use of Atropine in Incarcerated Hernias.**—D. HAGEN (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) has discovered that the physiological activity of atropine will readily explain the efficiency of this drug in incarcerated hernias, if the pathology of these be considered. In every incarceration there is a paresis of the musculature of the intestinal loop, accompanied by a reflex tetanic irritation of the external oblique muscle. Since atropine first stimulates muscles supplied by sympathetic nerves, it will tend to overcome the paresis; its subsequent paralyzing action will then be directed against the tetanus of the abdominal muscle. The author proceeds as follows: Half a cubic centimeter of a 1-1,000 solution of atropine sulphate is injected into the neighborhood of the hernia; if this is effective, the dose is repeated every hour; if not, double the dose is injected and a gentle attempt at taxis is made. After six to eight hours a laparotomy is indicated if vomiting continues, and the pulse and facial expression do not improve. It will be possible to save many patients from operation and the method demands an extensive trial, especially in the aged, where the mortality is unusually high.

**Bismutose as an Intestinal Astringent.**—The value of this preparation is commented on by P. COHNHEIM (Berl. klin. Woch., Dec. 28, 1903). He has used it in a large number of cases of catarrhal intestinal conditions, and finds that although in chronic cases it does not produce a cure, it effectually relieves the distressing symptoms. It is of particular value in the chronic diarrheas of adults, especially in alcoholics, where he has given it in doses of one-half to an entire teaspoonful three times daily after meals. This should be continued for at least four weeks, together with proper regulation of the diet.

**Linseed Poisoning.**—The following symptoms were produced in a patient who was a robust man, healthy to all appearances, save for a strangulated hemorrhoid. J. O. HOLLICK (Lancet, Nov. 21, 1903) reports that a hot linseed meal poultice was applied to the part at 3 P.M. At 7 P.M. the patient's mouth and throat felt as though they were lined with velvet, the

skin of the hands and feet felt as though they were covered with scales. Anserine appeared all over the body, the color of the skin changing from normal to red or purple. There was a rush of blood to the head, the hearing was affected, and the patient was unable to see well; the heart ran up to 120 a minute, the chest seemed to the patient to be tightly constricted. After three-quarters of an hour of these symptoms an acute attack of diarrhea intervened. The patient vomited a quantity of dark material, although he had taken nothing but milk for forty-eight hours. After this the symptoms gradually passed off. On two previous occasions he had been poisoned by linseed, once after eating 12 of the seeds and again after eating lozenges of linseed and licorice. The ordinary linseed meal is obtained by expressing the oil from the seeds and powdering the remains.

**Carbonate of Creosote in Pneumonia.**—In the hands of J. A. SCOTT and C. M. MONTGOMERY (Therap. Gaz., Dec. 15, 1903) carbonate of creosote in pneumonia caused no irritability of the stomach and no disturbance of the urine. The degree of toxemia in all cases barring the fatal ones was mild and pseudocries were common, but bore no relation to the crisis or the mortality. The mortality in 67 cases was 14.9 per cent., which does not corroborate the unusually low figures obtained by others, especially since equally low figures were obtained in the same hospital with other methods of treatment. The study of the clinical effects of carbonate of creosote should be continued, the dosage should be increased and the effect upon the toxemia carefully watched.

**Serum Treatment of Arteriosclerosis.**—The serum of Trunczek, a solution of various mineral salts in water, has given excellent results in the hands of D. SCHEFFLER (La Méd. Moderne, Dec. 23, 1903). When injected hypodermically or into the muscles, a fall of blood-pressure, amounting to 2 to 7 cm., was generally noticed, though the anatomical lesions of arteriosclerosis were hardly affected, even after prolonged use. The most gratifying results were obtained in the functional and subjective complaints of arteriosclerosis and neurasthenia, such as insomnia, dyspnea, pruritus, vertigo, and neuralgia. In chronic rheumatism, on the other hand, no improvement was noted. Success was also experienced in certain urinary and sexual derangements. Where an amelioration was brought about this was lasting in most cases, and in many even permanent. One cubic centimeter should be injected every day.

**Properties of Fluorescing Substances.**—If strongly fluorescing substances, such as akredin, eosin and quinine, are allowed to act upon lower organisms in the presence of light, they will manifest strong bactericidal properties. Similarly the action of ferments is inhibited and toxins, such as ricin, will lose their power to agglutinate red blood corpuscles. These phenomena are not observed in the dark or if the rays causing fluorescence are cut off. In order to determine any possible therapeutic value, H. v. TAPPEINER and D. JESONEK (Münch. med. Woch., Nov. 24, 1903) applied eosin to three cases of epithelioma of the face and then exposed the ulcerations to the sunlight. In two, cicatrization was complete in fifty to sixty days, and in the third, an extremely malignant growth, which had destroyed almost the entire nose, healthy granulations were beginning to form. Equally good results were obtained in lupus, scrofuloderma and syphilitic affections of skin and mucous membranes, such as broad condylomata. The action is most intense where the diseased tissue lies exposed, but sometimes the action of light will set up an erythema which hastens ulceration and thus allows the eosin to act directly. Experiments on subcutaneous and oral use of eosin are in progress.

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## SURGICAL TREATMENT OF SPLENIC DISEASES.

ACUTE hemorrhage from the stomach suggests the existence of gastric ulcer. In a large percentage of cases this supposition is substantiated by operation or by autopsy. In a very small proportion, however, it has been shown that the bleeding had been secondary to disease of the spleen.

To this latter class of cases Banti has given particular attention, and writers have coupled his name with the train of symptoms which he has described. Others have preferred to call the disorder "primitive splenomegaly associated with hepatic cirrhosis."

In addition to these terms, several others have been employed in naming esoteric splenic diseases. Banti himself has applied to the special class of symptoms which he has isolated, the term "splenic anemia." Gaucher refers to the same malady as "idiopathic hypertrophy of the spleen;" De Bove as "hypertrophy of the spleen without leucemia." Osler states that "the question of the existence of a separate malady—'anemia splenica'—is still in what might be called the inquisition or tentative stage." Sippy speaks of the condition as "splenic pseudoleucemia." In fine, Douglas laments that the subject is "befogged with a manifold nomenclature."

Fog certainly does exist and an exact nomenclature is a desideratum. The multiplicity of names employed for this simple series of symptoms does, however, show one thing with great clearness: it is that there is great activity in the study of splenic lesions. And yet, notwithstanding this activity, confessedly little is known about such lesions save that if left alone they kill. The hope of the mystified practitioner must be that shortly out of this pathological chaos a therapeutic cosmos will be evolved so that cases shall be brought within the reach of remedy, which now progress not alone untreated but actually unrecognized to a fatal end.

This goal is, however, by no means in sight; the knowledge necessary to attain it is not yet in our possession. How very little, for example, is known of this so-called "Banti's disease" this "symptom complex" which is one of the very important esolienic lesions. While it is possible that the characteristic symptoms—the anemia, the gastric and enteric hemorrhages, the hepatic and splenic enlargements, may be correctly traced to some form of toxemia, or, perhaps, as Barr has suggested, to a vasomotor paresis of the splanchnic area, the fact remains that the etiology of the disease is unknown. Until adequate light shall replace this darkness so that we have definite understanding of the nature of the disorder, it is obvious that no revolutionary medical agent can be suggested. We must, for the time being, depend on the surgical methods hitherto adopted, crude and empirical though they may be.

The surgery of the spleen occupies a place approaching in importance that of the pancreas and the gall-bladder. Chas. G. Levison, in an article on "Splenectomy for Banti's Disease," in the November *Annals of Surgery*, states that in the past decade splenic surgery has made great strides. He quotes from Hargen's monograph, which shows that in eighty-four cases of extirpation of the spleen for chronic malaria there were but seven deaths, or less than 8 per cent. The malaria incidentally was not cured. In 131 splenectomies for different causes there were sixteen deaths (12.2 per cent.). Before 1890 the mortality was 42.2 per cent.

Surgeons have evidently gained in cunning and if splenectomy is indicated to save life the mortality rate does not contraindicate resort to the removal of the organ.

The responsibility of early and accurate diagnosis must rest with the general practitioner. Maragliano and Terrille report sixteen cases of

Banti's disease treated by splenectomy with three deaths. In two of the fatal cases there was probably a mistake in diagnosis. The two diseases with which it is most frequently confounded are hepatic cirrhosis with enlarged spleen; hematome-sis being present and splenic leucemia. To operate in the latter case is nearly always fatal, Warren reporting forty-three splenectomies resulting in only five recoveries. Here the differential blood-count settles any doubt.

The condition which Banti describes is characterized by ascites, hepatic cirrhosis and splenomegaly. There are three stages. In the first, which lasts from three to ten years, splenomegaly and anemia are present. The second stage is marked by a reduction in the amount of urine and an increase in bile pigments and urates. It persists several months. The third stage is characterized by the development of ascites, which is painless. Death usually occurs within a year of the advent of this symptom.

The blood changes are only fairly characteristic. Levison recapitulates them as follows: Oligocythemia, the average number of red cells being about 3,500,000; oligochromia, the low percentage of hemoglobin is fairly constant and is marked by a low color index. In pernicious anemia the contrary obtains, and leucopenia. This is quite constant. The red cells and the differential count reveal nothing of diagnostic value.

The postoperative conditions of these cases may be interestingly compared with those which follow the removal of a normal spleen. In the latter case the lymph glands enlarge, the bones become tender; there are characteristic blood changes, polyuria, abdominal pain, thirst; elevation of temperature and of pulse. These symptoms, however, are not observed in the case of children. In splenectomy for extensive esolienic lesions, however, no such changes occur. The splenic function has evidently been slowly assumed—as the lienal parenchyma died—by other organs—an interesting side-light on the too little known topic of vicarious organic action.

#### ECONOMICS AND TYPHOID.

THERE is a terse paragraph in the last message of Governor Odell to the legislature, which merits more notice than we have seen credited it. The Governor recommends that means be put in the hands of the Commissioner of Health which will enable him to secure a complete record of the water supplies of the State and the conditions which may produce epidemics.

The Governor's words are as follows:

"A complete record of the sources of public water supplies and the possible conditions which may produce epidemics of typhoid fever or other infectious diseases should be secured by the Health Commissioner, and I recommend that an appropriation be granted by the legislature for this purpose."

According to a report from the State Commissioner of Health, there were nearly 25,000 cases of typhoid fever, with a mortality of 1,635 cases, in New York State during 1903. If we take each life sacrificed to the fever to represent \$5,000, as is commonly calculated, there was lost last year, through the deaths alone, \$8,175,000. Assuming the expense of nursing the 25,000 cases at the low figure of \$50 apiece, the cost of the sickness was \$1,250,000. If one-fifth of those who were sick were wage earners receiving wages which averaged \$1.50 per day, and each patient was incapacitated for work for about six weeks, the total loss of earnings would probably exceed \$270,000. Bringing these several items together, the grand total of the cost of typhoid fever to the citizens of New York State is found to have been over \$9,695,000.

A railroad wreck, or a conflagration such as the recent theater fire at Chicago, would, if in New York State, have given a stimulus for legislation for the prevention of the recurrence of similar calamities. Yet the results in lives lost and money sacrificed would, in all likelihood, not be comparable with the losses entailed every year to the citizens of this State by reason of typhoid fever.

It is to be hoped that the Governor's reference to the need of a report on typhoid will receive the prompt and generous support of the legislature. Investigations and circulars of typhoid have been issued by many other State boards of health in the past, and the work should be undertaken here in a broad and scientific manner. We shall look with interest for the introduction of a bill in the present legislature, authorizing the expenditure of the means required, and will favor the employment of the most expert skill which the Commissioner can secure in bringing this matter to a successful conclusion. If the work is well and honestly done, it should produce the most beneficial results in New York and have a wide educational influence elsewhere. If not done in the best manner possible, it would better not be undertaken. Experience shows that parsimony in public health work is poor policy.



### ALBUMOSES AND PEPTONES.

RECENT researches in the domain of the physiology of digestion have been exceedingly fruitful of results and have brought into existence such a wealth of literature, widely scattered in the various technical journals, that it is somewhat difficult for the busy physician to remain *au courant*. An occasional survey of the most notable achievements may accordingly not be out of place.

According to the doctrine of Kühne, peptic as well as tryptic digestion of the albumins led to the formation first of primary albumoses, which were then transformed into secondary albumoses and these again into peptones. But, while the albumoses of peptic and of tryptic origin were regarded as identical, Kühne differentiated the peptone produced in the stomach—his amphopeptone—from that produced during pancreatic digestion. In the former, two hypothetical groups were still united, of which one—the hemigroup—could be further decomposed by trypsin, while the other—the antigroup—was resistant. Tryptic digestion, according to Kühne, thus led to an antipeptone, which differed from the amphopeptone in the absence of the hemicomplexes. These were supposedly decomposed with the formation of amido-acids.

This doctrine has been more or less modified by recent investigation. Through the Strassburg school especially it has been shown that the number of primary products of peptic digestion is larger than was supposed by Kühne, and that in the earliest stages of digestion already products are formed, alongside of various albumoses, which no longer give the biuret reaction, and which are now commonly spoken of as peptoids. Later, the primary albumoses are transformed into secondary albumoses, of which also several varieties exist. Following this stage of digestion, products are formed which differ from the albumoses in the fact that they cannot be precipitated from their solutions by saturation with ammonium sulphate, either in the presence of an acid or alkali, or with a neutral reaction.

This brings us to Kühne's concept of peptone and his assumption of an essential difference between that formed during gastric digestion as compared with the product of tryptic digestion, and with it to the question of the unity of these products. Kühne himself doubted the unity of antipeptone, and it has now been demonstrated beyond all possibility of error that an amphopeptone and an antipeptone do not exist in the original meaning of the term. These hypothetical

substances have been shown to represent mixtures of various fundamental constituents of the original albuminous molecule, which partly gives the biuret reaction. It has been ascertained moreover that these products are the same, no matter whether the decomposition of the original albuminous molecule has been effected by means of pepsin or by trypsin. The essential difference between the two ferments appears to lie in their effect on the velocity of reaction, viz., the varying rapidity with which the ultimate destruction of the albumin is brought about. In this respect trypsin is more active than pepsin.

With the destruction of the original concept of peptone interest has become centered in those final products from which the tissue albumins must again be constructed. These comprise the common mono-amido acids, leucin, alanin, glycol, amidovalerianic acid, glutaminic and aspartic acid; the diamido acids, arginin, lysin and histidin; the sulphur body cystin; the aromatic amido acids, phenylalanin and tyrosin, etc. They represent various radicles which probably exist in the albuminous molecule preformed and are linked together in more or less complex groups. The combinations of amido acids E. Fischer has termed peptids, and in a most interesting series of experiments he has shown that bodies of this order are formed during proteolytic digestion and occupy a position intermediary between the albumoses and the true end products. Among the products of tryptic digestion in the case of casein, egg-albumin, fibrin, serum globulin, etc., he could thus demonstrate a polypeptid which still contained the various amido-acids, that can be obtained from the albumins in question, and at a time where such acids already existed in the free state. Probably Siegfried's "peptones" also belong to this group, which are manifestly fairly simple bodies, as on further decomposition they only yield a small number of end products.

To sum up, the evidence is now quite conclusive that both during gastric and intestinal digestion the albuminous molecule is completely broken down to its fundamental components and we are forced to the conclusion that the various tissue albumins are formed synthetically from these comparatively simple substances, in a manner quite analogous to the formation of fat and of glycogen. Löwi has shown that it is possible to maintain nitrogenous equilibrium in dogs by feeding with the crystalline cleavage product, the result of pancreatic autolysis, which no longer gives the biuret reaction, and his results have al-

ready been confirmed by others (Henderson and Dean). In this connection it is interesting to note that the first steps toward a synthetic formation of albumoses have yielded very encouraging results. E. Fischer has suggested that the amido-acids probably exist in the albuminous molecule as anhydrides, and united to each other according to the plan:  $\text{CH}-\text{NH}-\text{CO}$ , viz.,  $\text{NH}-\text{CH}-\text{CO}-\text{NH}$ . Starting from this assumption he has succeeded in uniting amido-acids with each other to form various dipeptids and tripeptids and theoretically nothing should be in the way of the artificial production of polypeptids, such as they are now assumed to occur in the intact albuminous molecule.

#### PROFESSOR HALLIBURTON'S LECTURES AND NERVE REGENERATION.

AS THE result of a foundation by Dr. Christian A. Herter, there is to be every year at the Bellevue Medical School, a series of scientific lectures on some subjects connected with medicine by a distinguished investigator, or teacher from some other medical school in Europe, or this country.

The first of these series of lectures was concluded on Wednesday of the present week and was given by Professor W. D. Halliburton, of the University of London, England.

Professor Halliburton is known as an original investigator in physiology and physiological chemistry and as one whose conservative conclusions are considered worthy of every attention. His lectures have proved of more than usual interest.

Dr. Halliburton's delivery is excellent and he evidently has the precious gift of teaching, which needless to say, not all original investigators share. It is seldom that a body of students has had the opportunity to enjoy an intellectual treat of so high an order as this in which the *utile cum dulce* were mingled so as to create the feeling that perhaps there was, after all, a royal road to the learning of physiology.

One of the most practical of Dr. Halliburton's lectures, was that on nerve regeneration—a subject that can scarcely fail to be of interest to every practitioner of medicine. The matter has been recently investigated by a number of observers, especially Ballance and Purvis Stewart, in England, and in this country by Howell, Huber and Cushing. Ballance and Stewart have taught that cut nerves regenerate not only from the central stump, as Waller originally taught, but also in the periphery. Howell and Huber have found that

while in the peripheral portion of a cut nerve some preparation for regeneration may be noticed, the axis cylinder, the essential part of the new nerve regenerated only from the central portion. In confirmation of this Mott and Halliburton found a great activity of neurilemma cells, which, by the Golgi staining, may resemble nerve fibers, but are not true nerve fibers. This conclusion has been confirmed by the studies of Langley and Anderson at the University of Cambridge in England.

In clinical surgical reports there are certain cases which seem to contradict entirely the teaching of the necessity for new growth of nerve fibers, since apparently they point to direct union of severed ends and almost immediate reestablishment of nervous transmission. Cut nerves are sewed together and feeling is noted very soon afterward. In these cases Professor Halliburton is convinced that it is not the physician who is at fault in his investigations, but the patient who, because of an eminently suggestive mood, wrongly interprets the sensations present. As a rule, whatever sensations may be supposed to be present in the region supplied by the cut nerve, they soon pass off and the true restoration of nervous function takes many weeks or even months, but true return of function, both sensory and motor, has followed nerve anastomosis.

This whole subject of nerve regeneration was treated in a masterly fashion and withal with a pleasant teaching manner that made the lecture always a source of unflagging interest. It is evident that Dr. Herter has done an excellent work in thus providing an opportunity for students of Bellevue to hear distinguished medical authorities outside of their own faculty and his example may well be imitated by other members of the profession, or by others who wish to confer a real benefit upon medical education. These lectures are sure to produce a sympathetic appreciation of the literature of important subjects and at the same time broaden the views of medical students which are apt to be narrow enough as the result of being constantly influenced by the opinions of a single set of specialists.

It is not long since a distinguished foreign medical visitor announced that within a few years European medical students would come to America in order to finish their practical medical education. Under the inspiration of medical opportunities, such as these, we can readily realize that the truth of such a prophecy will be seen much sooner than would otherwise be expected.

## ECHOES AND NEWS.

## NEW YORK.

**East Side Physicians Association.**—A medical society under the name of the East Side Physicians Association of the City of New York was organized January 15, with meeting rooms at 206 East Broadway, Manhattan.

The new Association will meet every third Friday evening of the month excepting July, August and September. The following officers were elected for 1904: Dr. Ignatz Morway Rottenberg, President; Dr. Maurice J. Burstein, first Vice-President; Dr. Frederic N. Wilson, second Vice-President; Dr. Nathan Friedman, Secretary; Dr. Maurice Caspe, Treasurer; Dr. Sigmund A. Tarlor, Chairman of Ways and Means Committee; Dr. William S. Gottheil, Chairman of Committee on Ethics; Drs. Robert Abrahams, Abram Brothers and Max Landesman, Trustees; Drs. Maurice M. Berger (Chairman), Julius Solow, Waldema Dorfman, Pierre A. Siegelstein and Isidor Ritter, Committee on Admission.

**Food Adulteration in New York State.**—Charles A. Wieting, Commissioner of Agriculture, in his report to the legislature, says that the work done under the Pure Food Law of 1903 has been confined to collecting and analyzing samples of food products. With a few exceptions the catsups examined were found to contain preservatives and coloring matter. Out of the 17 samples of cream of tartar eight were found to be substitutes. Of the coffees analyzed a few samples were found to contain foreign substances. Of the samples of molasses and syrups it was found that many were composed of sucrose mixed with glucose. Seven of the 12 oils examined were found to be pure oil and five cottonseed oil. The following table, showing the amount of butter and cheese manufactured in the State, is given:

BIENNIAL STATEMENT.

Year.	Butter, lbs.	Cheese, lbs.
1892 .....	19,497,357	130,991,310
1894 .....	23,218,626	115,763,325
1896 .....	21,429,694	87,765,143
1898 .....	30,586,088	105,405,266
1900 .....	39,183,311	126,658,672
1902 .....	49,919,794	123,987,516

The Commissioner says that New York is the leading cheese State, the amount made here being nearly one-half that produced in the United States. The consumption of pure milk is increasing with great rapidity. While in 1884 the milk consumed in the city of New York was 529,954 forty-quart cans, in 1894 it was 1,039,454 cans, and in 1903 it was 1,734,953 cans.

**Woman's Place in Medicine.**—Woman's position in the medical world was described by Miss M. Carey Thomas, president of Bryn Mawr College, at the fiftieth anniversary celebration of the New York Infirmary for Women and Children, at the Waldorf-Astoria on Saturday evening. Part of the address was as follows:

"Medicine, though closely allied to nursing and requiring for success many of those same qualities that women seem preeminently to possess, is one of the professions into which the influx of men has been phenomenally great during the past fifty years. So much of a physician's education as precedes the medical degree can now be obtained with little difficulty. Until ten years ago, when the Johns Hopkins University opened its co-educational medical school, which afforded women the inestimable privilege of studying under some of the most eminent physicians of the world, women were excluded from all the great medical

schools of the East of the United States. It is only a question of time when all medical schools will admit women. In view of the trend of modern opinion and usage, it seems incredible that in the great city of New York no woman can obtain the first two years of a regular medical training without leaving her native city and residing, at great additional expense, in Ithaca, Philadelphia, or Baltimore, or in some other city. In other respects the other great cities of the East are sadly illiberal to women, and New York is one of the most illiberal of all. It seems incredible that in 1853 Dr. Elizabeth Blackwell found it necessary to found the infirmary to provide clinical work and hospital practice for herself and other women physicians, and that fifty years afterward this infirmary and a small women's homeopathic hospital are still practically the only hospitals where women may practice as internes or as visiting or regularly appointed dispensary physicians. In Great Britain, on the contrary, much greater justice is shown to women. Twenty hospitals in London, ten in Glasgow, nine in Manchester, seven in Edinburgh, and five in Dublin are open to them. The condition of affairs in America is all the more difficult to explain because where women patients are, there should women students and women physicians be—and where men patients are women students and women physicians are no more to be objected to than women nurses; and if we must choose between disagreeable alternatives, it is, after all, far less objectionable from every point of view, except from that of tradition and prejudice, for men and women together to study and treat diseased men in hospitals and clinics than as now in most hospitals for men only to study and treat diseased women.

**Value of District Nursing in Tuberculosis.**—Prof. Walter B. James in a lecture to his class at the College of Physicians and Surgeons on the treatment of tuberculosis in this city, said that to treat a patient in hospital costs about \$1 per day or nearly \$400 per year. With a slight addition, this sum would pay the salary of a district nurse for the same length of time and would enable her to supervise the home treatment of from three to five hundred patients. At present by removal to a hospital we can only hope to destroy a single focus of the disease and are pretty sure to leave several behind who will contract it sooner or later. By the "visiting" method, however, it is conceivable that one person in four might be saved from infection. This would apply, of course, only to the very poor who are ignorant of the most fundamental hygienic laws.

**Lectures by Dr. Halliburton.**—The first series of lectures, established by Dr. Christian A. Herter at the University and Bellevue Hospital Medical College has just been completed by Dr. W. D. Halliburton, Professor of Physiology at King's College, London. The lecturer has for some years been President of the Section of Physiology of the British Medical Association. Two years ago he was selected to deliver the Croonian Lectures before the Royal College of Physicians in London. The present course of twelve lectures was devoted to the consideration of the biochemistry of muscle and nerve. The work is largely the result of the author's own discoveries. The lectures were held daily in the Carnegie Laboratory, 338 East Twenty-sixth street, at 4 o'clock.

**Books for the Hospitals.**—The twenty-ninth annual report of the Hospital Book and Newspaper Society, which is a branch of the State Charities Aid Association, shows the following work done during the year: Total amount of reading matter distributed during the year ending Sept. 30, 1903—Books, 6,095; magazines, 27,220; weekly and illustrated papers, 47,370.



Collected from the society boxes (estimated)—Books, 2,225; magazines, 11,500; papers, 187,000.

**Smallpox Still Active in New York State.**—The State Health Department issued its weekly bulletin on smallpox, showing that last week new cases have appeared in the following places in this State: The villages of Salamanca and West Salamanca, Cattaraugus County; the city of Plattsburg, Clinton County; the village of Middleport, and the town of Cambria, Niagara County, and the town of Massena, St. Lawrence County. The epidemic which has prevailed extensively in the village of Medina, Orleans County, appears to have subsided.

**Death of Dr. Frank Shaw.**—At a special meeting of the Medical Board of the Norwegian Hospital, held Jan. 11, 1904, the following resolutions were unanimously adopted: *Whereas*, we, the members of the Medical Board of the Norwegian Hospital, having learned with profound regret of the death of our late associate, Dr. Frank W. Shaw; and

*Whereas*, Dr. Shaw, by his nobility of character, scientific attainments, and devotion to the sick, endeared himself to us as a man and a physician; be it therefore

*Resolved*, that we, the members of the staff, fully realize and feel, that by his death, the entire medical profession has sustained a grievous and lasting loss; and furthermore, be it

*Resolved*, that we tender our sincerest sympathy to his family in their bereavement; and further be it

*Resolved*, that a copy of these resolutions be sent to the family, and to the medical journals of our city; and be it further

*Resolved*, that these resolutions be spread in full upon the minutes of this board.

#### PHILADELPHIA.

**Hospital Bequests.**—By the will of the late Henry B. Ashmead his estate of \$500,000 reverts to the Episcopal Hospital as a memorial to his wife after the death of his widow and daughter. The late Louis C. Vanuxem bequeathed to the Jefferson Hospital, of which he was a trustee, \$25,000.

**Medical Jurisprudence Society.**—At the meeting of this society, held January 18, Dr. D. J. McCarthy read a paper on "The Conducting of Medical Investigation in Medicolegal Cases at Vienna, with Special Reference to Laboratory Work." W. W. Smithers, Esq., read a paper on "Criminal Law Procedure in Continental Europe." Officers for the ensuing year were elected.

**Philadelphia Medical Club.**—The annual meeting of the Medical Club of Philadelphia was held at the Bellevue, January 16. The club is eleven years old and has 570 members. The following officers were elected: President, Dr. E. E. Montgomery; first vice-president, Dr. Roland G. Curtin; second vice-president, Dr. Wharton Sinkler; secretary, Dr. J. Gurney Taylor; treasurer, Dr. F. Savary Pearce; member of the Board of Governors, Dr. E. L. Duer; Executive Committee, Dr. Hobart A. Hare, Dr. Ernest Laplace, Dr. William H. Warder, Dr. Alexander McAlister and Dr. Walter L. Pyle. After the election a loving cup was presented by the society to Dr. Guy Hinsdale, the retiring secretary, who leaves in a short time to engage in practice at Hot Springs, Virginia.

**Neurological Society.**—In celebration of the twentieth anniversary of the organization of the Philadelphia Neurological Society, the following special program has been announced for the meeting to be held January 26, at 8.15 P.M.: "The Metaphysical Conception of Insanity," by Dr. J. Hendrie Lloyd; "The

Mental Processes by Which the Rest-Treatment Was Developed," by Dr. S. Weir Mitchell; "The Surgical Operations Applicable in Insanity," by Dr. J. Chalmers DaCosta; "Mystic Medicine," by Dr. F. X. Dercum. All members of the medical profession are invited to attend.

**College of Physicians.**—At the meeting of the Section on Medicine, January 11, was held a symposium on "The Early Manifestations of Cirrhosis of the Liver." Dr. W. W. Ford, of Baltimore, spoke on the Pathology; Dr. D. L. Edsall upon the Chemistry, and Dr. Charles G. Stockton, of Buffalo, upon the Clinical Manifestations.

**School Inspection.**—It is stated that regular inspection of the schools will soon be begun, the additional inspectors to be appointed this week. The experimental inspection of the Mount Vernon school for one month showed that 75 per cent. of the 1,100 pupils were noticeably uncleanly. There were two cases of trachoma, 42 of acute contagious ophthalmia, and 47 of defective vision. Cases of ringworm were also observed. Director Martin, in conjunction with the Board of Education, is arranging a series of lectures on "School Hygiene," for the teachers.

#### CHICAGO.

**To Rebuild Hospital.**—The Michael Reese Hospital is to be rebuilt at a cost of more than \$250,000. A special committee recently met to provide funds for demolishing the old structure and erecting a new one. The committee decided that to build a suitable edifice at least \$250,000 would be required. Of this amount \$115,000 was subscribed at the meeting, contingent, however, upon the committee's ability to raise the remainder.

**Nurses Must Go Visiting.**—Nurses in training schools in the different hospitals of Chicago hereafter will have a month of district or visiting work added to their curriculum. This was decided at a regular bimonthly meeting of the superintendents of hospitals.

**New Superintendent for Presbyterian Hospital.**—After February 1 the Presbyterian Hospital will have a new superintendent in the person of Dr. Arthur B. Ancker, for twenty-one years superintendent of the city and county hospital in St. Paul, Minn. Dr. Ancker is one of the most eminent hospital superintendents in the United States and has made a wonderful record in St. Paul.

**Notes on University of Chicago.**—Suggestions for enlargement of the work of the University of Chicago, involving a probable outlay of nearly \$21,000,000 are made by President Harper in his decennial report of the university, recently issued from the University Press. President Harper's plans for the enlargement of the medical department involve: "The addition of three new clinical departments, medicine, surgery, and obstetrics, the erection of new laboratories on Marshall field, opposite the Hull biological laboratories, the provision of a temporary dispensary near the university; the provision at the earliest date possible of five hospitals for medicine, surgery, obstetrics, children's diseases, and contagious diseases, to cost, with endowment, \$1,000,000 each; the raising by Rush Medical College of \$1,000,000; the completion of the group of buildings, of which the Senn memorial is the first part, cost \$350,000; the organization of a school of dentistry and a nurses' training school."

**Institution for Treatment of Infectious Disease.**—Chicago is to have a new hospital on the South Side, plans now being under consideration for the erection of extensive buildings where the work of the Memorial Institute for Infectious Diseases will be carried on, and

its scope greatly increased. Thus far the work of the institute has been confined to the treatment of scarlet fever cases, the patients being housed through the leasing of beds at the Presbyterian Hospital, and to original laboratory investigation of scarlet fever. Special provision in the shape of an elaborately equipped laboratory will be made at the new hospital for a continuation of such investigation, which will probably be extended to embrace research as to the nature of other infectious diseases.

**Work of Progressive Health Club.**—Social ostracism for chewers of tobacco, increased fines and penalties for people who expectorate on sidewalks and in public conveyances and a general acceptance of the doctrine that cleanliness and morality are synonymous terms, are aims of this club. The club's basis objects are the investigation and study of hygiene and home sanitation, pure food measures, climatology, bacteriology, the influence of the solar system on human health, and lastly the expectoration nuisance. But now the last has become the first, and all of the society's energies will be bent toward the abolition of a habit that, in their opinion, has spread more disease and discomfort in centers of population than any one other. The Health Club proposes that special officers be stationed in street cars and on the main thoroughfares to arrest spitters. It is urged that after a few months of such efforts the death rate would decrease, for the spread of typhoid fever and many other contagious and infectious maladies would thus be lessened, and the public health promoted. A few examples of the punishment of offenders would suffice to bring about a general cessation of the habit, for people would be shamed or frightened into desisting from a practice that endangered not only their reputation for cleanliness and decency, but their freedom as well. The aid of all organizations interested in the promotion of the public health, and of reform bodies generally will be invited. Addresses will be delivered to school children, and the board of education will be asked to take up the subject in some form. Associations of physicians, and individual workers in the cause of hygiene and sanitation will be asked to cooperate. Funds will be raised to further the prosecution of all offenders.

**Medical Colleges Debarred.**—On January 12, the medical examiners of the Wisconsin board decided not to accept as evidence of ample medical training the diplomas of Harvey Medical College, National Medical University, and Jenner Medical College, all of Chicago. The ground for the action is that the courses of study in these institutions do not come up to the standard adopted as the minimum by the Wisconsin board. Other schools that are deficient are to be removed from the accredited list. The board is also about to prosecute a number of unqualified practitioners in the State.

#### GENERAL.

**American Laryngological Society.**—The annual meeting of the Eastern Section of the American Laryngological, Rhinological and Otolological Society will be held Saturday, January 30, 1904, at the Young Men's Christian Association Building, corner North Main and Pine streets, Fall River, Mass. The medical profession is cordially invited to attend the meeting.

**Kalamazoo Academy of Medicine.**—The annual meeting of the Kalamazoo Academy of Medicine was held at the Michigan Asylum for the Insane at Kalamazoo on January 12, 1904. The Academy is a district society having 106 active members and holds monthly meetings. A few years ago Dr. Edwin H. Van Deusen, a member of the Academy, gave the City of Kalamazoo a very fine public library building. In this building

is a large assembly hall with anterooms, cloakrooms and toilet adjoining, which is by the terms of the gift set apart in perpetuity for the meeting place of the Academy. At the annual meeting Dr. E. C. Dudley, of Chicago, gave an address on "Perineorrhaphy" and operated on a case in the asylum hospital. Dr. Daniel LaFerte, of Detroit, read a paper on "The Treatment of Some Sequelæ of Hip-joint Disease." The retiring President's address was given by Dr. Herman Ostrander, of the asylum staff. The following officers were elected: President, Dr. L. G. Rhodes, South Haven; First Vice-President, Dr. Paul T. Butler, Alamo; Second Vice-President, Dr. M. P. White, Dowagiac; Censors, Dr. O. F. Burrows, Jr., Plainwell; Dr. E. P. Wilbur, Kalamazoo; Secretary, Dr. Della P. Pierce, Kalamazoo; Treasurer, Dr. O. B. Ranney, Kalamazoo; Librarian, Dr. E. H. Van Deusen, Kalamazoo.

**Medical Clerk.**—The United States Civil Service Commission announces an examination on February 17 and 18, 1904, to secure eligibles from which to make certification to fill eighteen vacancies in the position of copyist (male), at \$500 per annum, in the Bureau of Pensions, and other similar vacancies, as they may occur. The examination will consist of the subjects mentioned herewith: (1) Letter-writing (a letter of not less than 150 words on some subject of general interest, competitors will be permitted to select one of two subjects given); (2) penmanship (the handwriting of the competitor in the subject of copying will be considered with special reference to the elements of legibility, rapidity, neatness, general appearance, etc.); (3) copying (a test consisting of two exercises—the first to be an exact copy of the matter given, and the second to be the writing of a smooth copy of rough-draft manuscript, including correction of all errors of spelling, capitalization, syntax, etc.); (4) anatomy and physiology; (5) diagnosis; (6) general and special pathology; (7) surgery and surgical pathology. Age limits twenty-five to thirty years. Only graduates of recognized medical schools may be examined. This examination is held to establish a register of eligibles with a knowledge of medicine. This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners at the places mentioned in the accompanying list, for application Form 1312, which should be properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application. Persons who are unable to file their formal applications and who notify the Commission of this fact, either by letter or telegram, with the request that they be permitted to take this examination, will be examined, subject to the subsequent filing of their applications, in complete form, provided their requests are received at the Commission in sufficient time to ship examination papers.

#### OBITUARY.

Dr. EDMUND S. HANNA, for many years a well-known physician of Pittsburg, died January 17, at his residence, 40 William street, East Orange, N. J. He was stricken with apoplexy last Tuesday and never recovered consciousness. He was born in Steubenville, Ohio, seventy-five years ago, and was graduated from Jefferson Med-

ical College, Philadelphia, in 1850. He began practice in Pittsburg and was surgeon of the Allegheny County Workhouse, the Children's Church Home, the Baltimore and Ohio Railroad, and the Allegheny Valley Railroad for many years. He retired in 1888 and moved to Boston, but took up his residence in East Orange eight years ago. He was a member of McCandless Lodge of Masons and Pittsburg Commandery.

## CORRESPONDENCE.

### OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, Dec. 26, 1903.

#### RETIREMENT OF A FAMOUS PHYSIOLOGIST—THE OXFORD MEDICAL SCHOOL.

SIR JOHN BURDON-SANDERSON, Regius Professor of Physics in the University of Oxford has just resigned his chair. He has exceeded the biblical limit of life by five years and doubtless feels that he has well earned a rest from active life. For more than thirty years he has been recognized as one of the foremost physiologists of Europe. After holding the chair of physiology in University College, London, for several years, he was in 1882 appointed to the Waynflete Professorship of Physiology at Oxford, being the first occupant of the chair which had then been newly founded. There was then little or no provision for the practical teaching of physiology at Oxford and a proposal to expend \$50,000 in the erection of a lecture room, a laboratory and working rooms, for the purpose, met with determined opposition on the part of a number of Members of Convocation, a large proportion of whom were country parsons. Burdon-Sanderson was known as a vivisector, and antivivisectionist sentiment was aroused to the point of fury. Professor E. A. Freeman, author of the "History of Norman Conquest," etc., denounced the proposal with all the truculence of the overbearing pedant which he displayed in his criticisms of Froude and of everyone who differed from him about anything. The nonsense which he talked on that occasion is scarcely to be matched even among the utterances of the ignorant folk who air their folly in the newspapers. The measure of his comprehension of the question at issue may be gathered from the following "arguments" put forward in his speech. He would not allow any class of men a monopoly in science. As a historian he claimed to be as much a man of science as any one who operated on live rabbits, but he did not ask to be allowed to illustrate the siege of Jerusalem by a repetition of its massacres, or the Elizabethan festivities at Kenilworth by a bull baiting. He deprecated the establishment in Oxford of a "chamber of horrors." After a tough fight the antivivisectionists were outvoted. But they would not accept defeat, and attempted to turn the flank of the enemy by inducing Convocation not to vote the annual grant required for the lighting, warming and general upkeep of the laboratory. This, too, failed, but the controversy led to the severance of life-long friendships and to John Ruskin's resignation of the Slade Professorship of Art. To Ruskin's mind, says his biographer, vivisection meant not only cruelty to animals but a complete misunderstanding of science and defiance of the moral law. Burdon-Sanderson went quietly on his way heedless of the shrieks and curses of fanaticism, and it is now acknowledged that to him more than to any one else is due the important position which the study of the physical sciences holds at Oxford. In 1895 he succeeded to the Regius Professorship of Medicine which had been held by Sir

Henry W. Acland for nearly forty years. Ten years ago he received the highest honor which a scientific man can receive from his brethren in this country by his election to the Presidency of the British Association for the Advancement of Science. He has also taken a leading part in the reorganization of the University of London. Himself a graduate of the University of Edinburgh, he was for some time physician to the Middlesex Hospital and the Brompton Consumption Hospital in London. His tastes and aptitudes, however, inclined him more to scientific research than to medical practice. But he has done some good work in pathology, particularly on inflammation, and in the province of public health. Personally he is a man of singular charm with a fine spiritual face which of itself is a sufficient refutation of the charges of cruelty that are still brought against him by the rabble rout of antivivisectionists. As a teacher he was too far above the head of the average student to be helpful for the passing of ordinary examinations. But on men of higher intelligence he had an inspiring influence which stimulated them to spurn delights and live laborious days in the search for knowledge. Many stories are told of his absence of mind, of which the following may serve as a specimen. His laboratory assistant, who watched over him like a nurse, left him one day standing at a table with a frog on one hand and a sandwich on the other. When he returned he found the Professor still absorbed in thought, apparently studying the sandwich, for the frog had disappeared. The animal was never found, and it is inferred that it formed the luncheon of the Professor. Burdon-Sanderson was made a Baronet in 1899 in recognition of his scientific eminence to the disgust of the antivivisectionists who complain that the sovereign specially delights in honoring vivisectionists. In proof of this they point in particular to the peerage bestowed on Lister and the knighthood on Victor Horsley. It certainly is a remarkable testimony to the general good sense of our government that those men should have been selected for titular distinction notwithstanding the well-known fact that the Royal family is strongly opposed to vivisection.

It would be difficult to overestimate Burdon-Sanderson's services to Oxford in the development of opportunities for scientific study and research. Twenty-five years ago an outcry was raised in the medical press about the inadequacy or rather the almost total lack of any provision for the study of medicine at Oxford. It was described by Ray Lankester as the "Lost Medical School;" it was said that "vacuity and annihilation now reigned where once medicine flourished and science found her own." Acland, the Professor of Medicine, was denounced as a dilettante, and Rolleston, the Professor of Anatomy was accused of "occupying himself and his pupils with any variety of collateral subjects provided that they had no relation to human anatomy and physiology and could not be pressed into the service of medicine." That there was a considerable amount of truth in these charges is unquestionable. Owing mainly to the conservatism characteristic of Oxford, which was described by Matthew Arnold, as "the home of lost causes," the efforts of the reforming party were defeated. Doubtless the financial difficulty stood in the way, for it was estimated by Ray Lankester that \$100,000 a year would be required to maintain a staff adequate to the requirements of a course of practical medicine, and that \$250,000 would have to be sunk in additional buildings. But the main obstacle was Acland's rooted objection to the "flooding of the University with mere medical students, specializing from the date of their matriculation, unaffected by the spirit of the place and with the smallest conceivable touch of humanistic learning." Acland was a typical specimen



of the academic mind as formed in our public schools and universities. He never seemed to be able to get rid of the idea that there was something vulgar about medicine, and his gently patronizing manner always conveyed the impression that he felt it a condescension on his part as a member of an ancient family to have adopted it as a profession. Though no great scholar himself, he wished to keep the sacred groves of Academe unpolluted by those who had, like Shakespeare, small Latin and less Greek. While he reigned, therefore, there was no prospect of the lost medical school being restored to life. Yet Cambridge had shown that an ancient university can under right direction be something more than an institution for competitive exercises in classical and mathematical lore and a finishing school for amateur cricketers. Under the influence of the late Professor G. M. Humphry and Sir Michael Foster it has grown from a negligible quantity into the largest medical school in England. Thanks to Burdon-Sanderson, the Oxford medical school, though still small, is now, as far as the ancillary and fundamental scientific subjects are concerned, the most important in the United Kingdom. The students are a select body who have to graduate in arts as a necessary preliminary to graduation in medicine, and the medical degrees of the University are more highly valued than those of any other school. To those who remember the state of things a quarter of a century ago, when the possession of an Oxford or Cambridge degree was a rarity in the medical profession the change is marvelous. Cambridge graduates are now as plentiful as blackberries, while Oxford doctors are fairly common. One result is a marked rise of the profession in the esteem of the British public which knows that the degrees of the two older universities are costlier than others and values them accordingly.

#### THE PHYSICIAN IN THE APOCRYPHA.

January 11, 1904.

To the Editor of the MEDICAL NEWS:

DEAR SIR: In the *Churchman* of January 9, 1904, George Foster Peabody calls attention to the appended verses in the Apocrypha bearing upon the physician and the "honor due him."

These assembled verses make an excellent short tract. It would be well if they could have a wide distribution especially among "Christian Scientists," "Faith Healers," etc.:

Honour a physician with the honour due unto him for the uses which ye may have of him: for the Lord hath created him.

For of the most High cometh healing, and he shall receive honour of the king.

The skill of the physician shall lift up his head: and in the sight of great men he shall be in admiration.

The Lord hath created medicines out of the earth: and he that is wise will not abhor them.

Was not the water made sweet with wood, that the virtue thereof might be known?

And he hath given men skill that he might be honoured in his marvelous works.

With such doth he heal (men) and taketh away their pains.

Of such doth the apothecary make a confection; and of his works there is no end; and from him is peace over all the earth.

My son, in thy sickness be not negligent: but pray the Lord and he will make thee whole.

Leave off from sin, and order thine hands aright, and cleanse thy heart from all wickedness.

Give a sweet savor, and a memorial of fine flour; and make a fat offering, as not being.

Then give place to the physician, for the Lord hath created him: let him not go from thee, for thou hast need of him.

For they shall also pray unto the Lord, that he would prosper that which they give for ease and remedy to prolong life.—Ecclesiasticus xxxviii, 1-15.

THEODORE DILLER.

#### SOCIETY PROCEEDINGS.

##### CHICAGO SURGICAL SOCIETY.

Regular Meeting, held December 7, 1903.

The President, Dr. E. Wyllys Andrews, in the Chair.

**Keloid Treated by X-rays.**—Dr. Wm. M. Harsha reported three cases. The patient was a young man, eighteen years of age, with a small growth behind the right ear, which had existed for ten years. Five years ago it grew to the size of an ordinary marble. It was excised. In three or four months the tumor was as large as ever, and finally grew to be twice the size it was formerly. Histological examination showed the characteristic formation of keloid. The growth was gradually becoming smaller and smaller under X-ray treatment, so that at present it was only one-sixth of the size it was when treatment was begun.

**Pancreatic Cyst.**—The second case was one of pancreatic cyst in a man aged twenty-nine years. The cyst had attained the size of a large cocoanut, filling the half of the left side of the abdomen. Fluctuation was distinct; there was no temperature, loss of weight, or other disturbance. Resonance could be made out above and to the left side of the tumor. An incision was made at the site of the scar from a former operation; the cyst wall presented, and was followed upward to find the colon above and over the front of it, extending to the pancreas. One-half gallon of fluid was evacuated. The specimen was a thick, turbid fluid of a reddish-brown color, containing thicker grayish-brown mucoid masses. On standing, it deposited a grayish-brown sediment in abundance. The cyst was drawn up into the opening in the abdomen and incised. The cyst wall was one-eighth of an inch thick. An effort was made to detach the cyst wall proper from the peritoneum, but this was so formidable that the operator was content to stitch the edge of the opening to the parietal peritoneum. A large tube was inserted. This kind of drainage has since been continued. The large cavity of the cyst has gradually diminished in size until the present time. Patient made an uninterrupted recovery.

**Actinomycosis of Jaw.**—This patient, a man fifty years of age, was referred to him with a probable diagnosis of sarcoma of the jaw. The patient had a swelling of the size of a hen's egg at the angle of the jaw on the right side. Actinomycosis was suspected, operation advised, and performed. Microscopic slides showed the characteristic ray fungus in the pus, but not in the tissue. The patient was entirely well.

Dr. L. L. McArthur narrated a case of pancreatic cyst, and said the treatment which had given the best results, though not the lowest mortality, had been total ablation of the sac.

Dr. Halstead mentioned two cases of pancreatic cyst that had come under his observation. In one case the wall was extremely thin. The cyst was opened and drained. In the other the cyst wall was thick, and the cyst contained possibly two quarts of fluid. It apparently grew from the tail of the pancreas, because when

he removed the cyst a piece of the pancreas came with it. He thought in the majority of cases these cysts could be enucleated, and if care was taken in separating the cyst wall from the retroperitoneal tissues, particularly from the large vessels, like the aorta, there was very little trouble. Both patients made good recoveries.

Dr. A. J. Ochsner stated that in several cases in which keloids had been excised and the condition had gotten worse after excision, the improvement was very marked following the X-ray treatment. In one case the keloid diminished to a very slight thickening. He urged that before removing any keloid now one should treat it thoroughly with the X-ray.

**Xanthoma Infantum.**—Dr. Louis A. Greensfelder reported a case of xanthoma infantum in a boy, aged ten years. The affection dated back as far as the patient could remember. The only manifestations of the disease were found on the cutaneous surface and the tendons, chiefly the extensor digitorum communis, extensor hallucis longus, and tendo Achilles. On the anterior aspect of the chest was a small pedunculated growth, slightly umbilicated, which is sometimes confused with beginning xanthoma, but this was molluscum contagiosum. The symmetry of the lesions was quite striking. A tumor on the right arm had been removed; a tumor involving the right buttocks was characteristic of xanthoma. There was a tumor of the tendo Achilles on both sides.

Dr. Carl Beck mentioned a case of xanthoma in which he had used electrolysis with satisfactory results.

**Conservative Surgery in Crushing Injuries of the Arm.**—Dr. Daniel N. Eisendrath reported this case as an example of how one could save a member with perfect primary asepsis and the use of conservative methods. He also reported a case of ulcer of the leg following traumatic thrombophlebitis of the lower extremity.

**Penetrating Wounds of the Abdomen.**—Dr. M. L. Harris read a paper on this subject, in which he reported 16 cases, with 3 deaths. Case I died from rapid profuse internal hemorrhage before the source of the hemorrhage could be discovered and controlled. It might, therefore, be excluded. Case V might also be excluded, he said, as death was due to shock from injury to both lungs and pleura and to the spinal cord. Excluding these two cases, there were 14 remaining, with but one death, with eight perforations involving the sigmoid, small intestine and transverse colon, with death on the third day from peritonitis. While in Case II no injury to any of the viscera was found, still operation was imperative on account of hemorrhage. In Cases IX and X neither injury to the viscera nor extensive hemorrhage was found. It may be claimed that these cases would have recovered without operation, and this is undoubtedly true, but who could have foretold before the abdomen was opened. The operation not only did no harm, but was productive of good, as the bullet which might have given rise to subsequent trouble was removed in each case. But, excluding these cases, there were still 11 cases with perforations and hemorrhage in which operation was absolutely indicated, with but one death. Instead of the usual mortality rate of 60 to 70 per cent. following operation, there were over 90 per cent. recoveries. The reasons for this, according to the author's opinion, are chiefly two: (1) Immediate operation. All cases but one were operated on within three hours or less from the time of the accident. (2) Drainage when the gastro-intestinal tract had been opened. The question of drainage in this class of cases was thoroughly discussed at the meeting of the American Surgi-

cal Association in 1902, and the consensus of opinion was in favor of drainage. In conclusion the essayist emphasized the following points: (1) In penetrating wounds of the abdomen there are absolutely no known symptoms which indicate injury to any of the viscera, except those noted above in connection with the urinary tract, stomach, and occasionally the lower bowel. (2) Except those relating to general shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis. (3) To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed; therefore, (4) every bullet or stab wound which penetrates the abdominal cavity should be operated on at the earliest possible moment, in order to anticipate the advent of peritonitis. (5) No time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by such means as the rectal insufflation of gases or vapors, or the analysis of recollected intraperitoneally injected air or liquids. (6) It is essential to examine systematically the entire gastro-intestinal canal in all cases, regardless of the point of entrance of the wounding body. (7) Whenever the alimentary canal has been perforated, suitable drains should be placed either through the operative incisions or counterincisions, as may appear best suited to the individual case.

Dr. E. J. Seen reported the case of a woman who fell to the ground, striking on the buttocks. This happened about 6 o'clock in the evening, after she had partaken of a hearty meal. She retired without any symptoms seemingly. At 12 o'clock that night she was taken with violent pains in the abdomen. He saw the case the following day in consultation. An operation was advised, consented to and performed. A perforation was found in the lower portion of the jejunum about the size of a small finger-nail. This case showed how there might be a severe injury without immediate symptoms, although he thought the mucous membrane in this case might have protruded in such a way as to have closed off the general peritoneal cavity. He urged early and prompt operation in all cases of perforating wounds of the abdomen.

Dr. Arthur Dean Bevan said he was impressed with reports of the surgeons of the Transvaal war and by the reports of the surgeons during our late war with Spain. He thought these reports could be relied on. In regard to wounds of the stomach, the majority of cases recovered which were not operated upon; a large number of those operated upon died. This statement would not hold good, however, in regard to penetrating wounds of the abdomen in general. There were more recoveries after wounds of the stomach than after intestinal wounds. Where it was possible to do an aseptic operation inside of two or three hours, there could be little doubt that operative treatment should be employed, and he thought the results obtained by Dr. Harris in his cases supported that statement. The conclusions of Dr. Harris, however, should be restricted to civil practice.

Dr. L. L. McArthur thought emphasis should be placed upon prompt interference under such ideal conditions as would obtain in hospital practice. In the cases cited by the essayist there was undoubtedly a perfect surgical technic in the way of antisepsis and asepsis, and which was ideally carried out. Dr. Harris had everything at hand and a corps of assistants that rendered it possible for him to invade any part of the abdomen boldly, freely and safely. These conditions, however, did not obtain in many cases. He was not inclined to believe that every case of perforating wound of the gastro-intestinal tract required drainage, but that the decision should be made upon the conditions found.



through the escape of infective material or not, inflammatory reaction in the peritoneum or not. Certainly he thought it should be as safe to close some of these abdomens as to close, for example, the last two perforations he had had, in which the typhoid stools filled the abdomen in each case, and yet washing it out with salt solution and closing the abdomen, both of the patients recovered.

Dr. D. W. Graham thought the essayist had been unusually fortunate in getting his cases early and under favorable circumstances. He thought cases had been lost by not draining, and believed many of the good results obtained by the essayist were due to drainage. Hereafter, in practically all such cases, he thought he would drain.

Dr. S. C. Plummer narrated a case of stab wound of the abdomen which was inflicted about two inches above and to the right of the umbilicus, with a small portion of the omentum protruding through it. The wound was enlarged and through it an exploration was made, but no injury found to any of the viscera. The exposed portion of omentum was ligated off, and the patient made an uneventful recovery. He narrated a second case of bullet wound. This patient died from hemorrhage.

Dr. John E. Owens said that it was his practice in penetrating wounds of the abdomen to follow the principles laid down by the essayist. The mortality was greatest among those cases in which operations had been delayed. In cases that were operated on early, before the advent of peritonitis, the mortality was very much less.

Dr. Harris, in closing the discussion, said his remarks applied entirely to civil practice. However, he thought the subject of the treatment of wounds in military practice was very much confused. Surgeons knew the great disadvantage under which the military surgeon labored, and the difficulty of getting patients early for operation. The secret of success in these cases was early operation.

Dr. James M. Neff exhibited for Dr. John B. Murphy a specimen from a seven months' abdominal gestation, removed thirteen years later.

**Polycystic Kidney.**—Dr. Arthur Dean Bevan showed a large polycystic kidney. In this case the clinical symptoms were those of pain on the right side in the kidney region. The man had considerable hemorrhage and secondary anemia from it. The usual incision was made and the mass exposed and removed. The patient made an uninterrupted recovery, having regained his health, weight and strength.

**Hypernephroma.**—The second specimen exhibited was removed from a case of hypernephroma. An interesting feature connected with the case was that part of the mass projected into the pelvis like a polypus projects into the vagina, and was responsible for the free hemorrhage which was encountered in the case, with profound secondary anemia. He had encountered seven or eight cases of hypernephroma, and said that this form of tumor was a common form of malignant tumor of the kidney. Furthermore, the most severe hemorrhages he had ever seen from the kidney had been in cases of hypernephroma.

**Hypernephroma.**—Dr. S. C. Plummer reported the case of a man, sixty-eight years of age, who, fourteen months before operation, had a very profuse hematuria. There were practically no symptoms. Patient discovered the tumor accidentally one morning, and about this time he was beginning to show symptoms of malnutrition and weakness. The tumor was removed and proved to be a hypernephroma. There were several cysts connected with it.

## THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

*Stated Meeting, held December 7, 1903.*

**Tumor of the Spinal Cord.**—Dr. Thomas showed a patient who had been operated on for this affection. The man, aged thirty years, had been admitted to the hospital six weeks previously. Since June, 1901, he had suffered from slight pain in the left forearm, which, by winter, had become severe, and appeared also in the left shoulder when the head was raised or when patient coughed, laughed, sneezed or yawned. For about one year he had slight disability in left leg. He had also noticed some weakness and atrophy of the left hand and an interference with heat and cold sensation in the right leg. On examination atrophy of left hand, pain down left arm, sensory disturbances on the right side, slight stiffness of the left leg, with weakness of the flexor muscles, and exaggerated reflexes on the left side were found. No disturbance of bladder, rectum or sexual organs. The case looked somewhat like syringomyelia, but the long history of pain without motor disturbance pointed to some pressure-cause and tuberculosis, tumor and pachymeningitis were thought of. X-ray and tuberculin test were negative and operation was performed by Dr. Cushing. The spines and laminae of four or five vertebrae (those of the sixth or seventh cervical segments) were excised and an intraspinal tumor (fibrosarcoma of the benign type) was found and removed. The cord was uninjured. Patient recovered completely, the motor power is perfect and the sensory disturbances have practically entirely disappeared.

**Perineal Zoster.**—Dr. Cushing exhibited this case. The patient was operated on last summer for trifacial neuralgia and was doing well when on the fifth day he developed great pain down the back and legs and a little later a perineal herpetic rash. Only one other case of herpes as low as this has been reported and out of Head's 412 cases of zoster there are only 7 sacral. The segmentation of the cord has been studied anatomically (by actual dissection), embryologically, physiologically (by Sherrington's "method of remaining esthesia"), and clinically (by Head's method of mapping out the areas found in zoster cases). None of these, however, give good results in the sacral region, but this case, in which the sixth sacral segment was involved, clears up somewhat the matter of sacral segmentation.

**Notes on Hydatid Disease in Australia.**—Dr. J. Ramsay, of Launceston, Tasmania, introduced this subject. Australia has relatively more cases of echinococcus disease than any other country, except Iceland, and the disease occurs in all parts of the island. The natural habitat of the disease is the intestinal canal of dogs. Rabbits, kangaroos and oxen are also infected. The feces of dogs are the chief source of infection for man, but many cases follow the drinking of water from "water holes," creeks, etc. The parasites bore through the intestines, pass to liver and portal vein and then find lodgement anywhere (73 per cent. of the American cases occurred in the liver). Huxley divided the parasites into two classes: The ectocyst and the endocyst, and this classification still holds. Within the cyst wall is found hydatid fluid, containing scolices, hooklets, calcium carbonate crystals, daughter- and granddaughter cysts. The cysts may degenerate (with later calcification), suppurate or rupture. The symptoms vary with the site and are due to pressure, rupture and suppuration. The tumor is usually lobulated, fluctuates, and exhibits a peculiar but not constant thrill. Later suppuration occurs with the picture of sepsis. Ascites occurs, but jaundice is rare. Subphrenic cysts give respiratory and circulatory disturbances. Rupture usual-



ly occurs upward, but the cysts may break into the stomach or colon. The picture of septicemia or pyemia is often seen. The disease is hard to tell from other liver conditions, especially carcinoma. The trochar may be inserted for diagnosis, but fluid does not always escape and the procedure is not altogether free from danger.

The lung is affected next in frequency to the liver. the symptoms being pain, cough, dyspnea, small hemoptysis expectoration. Death or cure may follow rupture, which usually takes place into the bronchi. The disease often resembles pulmonary tuberculosis with which, indeed, it may be associated. Hydatid cysts occur also in the peritoneum, bones, diploe, ovary and uterus. They are uncommon in the kidney, thyroid and spine.

Eosinophilia has been observed in some cases, disappearing after operation. Surgical removal of the cysts is the only successful treatment, and the cases so handled usually recover even when the lung is involved.

**Intrapelvic Hematoma Following Labor.**—Dr. Williams reported this case. The woman, aged thirty years, was on Nov. 7 delivered by forceps of her first child, the placenta coming away normally. Intense pain about rectum occurred soon after and three hours later this had become very severe, symptoms of internal hemorrhage were present, and a tumor of the abdomen reaching to the umbilicus had formed. Laparotomy was done, expected uterine rupture was not found, but a large hematoma, lying between the bladder and symphysis, was cleaned out, and the cavity packed with gauze. The woman recovered, after a subsequent puerperal infection.

*Stated Meeting, held December 21, 1903.*

#### **Instrument for Timing Coagulation of Blood.**—

Dr. Boggs reported some experiments done on the coagulation of blood and showed a new instrument for the estimation of coagulation time. In this apparatus a drop or so of blood is placed on the surface of a truncated glass cone. Over the blood a fine current of air is kept blowing, which causes it to rotate as a whole. At the moment of coagulation, however, the rotation of the blood drop which, during the process, has been watched through a microscope, ceases, owing to the formation of fibrin, and thus a sharp reaction is seen at the moment of coagulation. This instrument is based on the principle of the apparatus first proposed by Brodie and Russell, but it is much less complicated and gives relatively constant results. It is also inexpensive. Dr. Boggs' experiments performed during the summer were directed toward demonstrating the possibility of artificially changing the coagulation time in living animals.

With injection of gelatine the results were very inconsistent, but most of the animals were entirely unaffected even by tremendous doses. With calcium salts, however, a rapid decrease in the coagulation time occurred quite constantly, and a return to the normal after stoppage of the drug was also usually noted. Injections of gelatine and calcium salts were also tried on blood which had been made pathological by previous injury. The results for gelatine were in this case also negative. The patients studied clinically included cases of gall-bladder disease, scurvy and purpura, and the results were all good when calcium lactate was used. It is necessary in using the instrument shown to have the surface perfectly clean, and to direct it at right angles to the drop when the blood is drawn. The coagulation time is uniformly longer with this instrument than with the Wright's tubes, averaging from four to five minutes.

The administration of calcium in one case of jaundice reduced the coagulation time from 13 to 2½ minutes, and good results were also obtained in carcinoma of the bladder, with hematuria.

**Limitations of Urinary Diagnosis.**—Dr. R. C. Cabot, of Boston, read this paper, in which he said that accuracy must always be relative to one's purpose, and misdirected exactness is a danger of present day students. The wise man knows where to concentrate his accuracy. A large part of the time spent on urinary analysis in relation to kidney conditions is wasted, for, as Councilman says, the urinary examination does not give any sure information as to the type of kidney lesion to be expected. Dr. Cabot reported two cases illustrative of this view. The first patient had before death one-half per cent. of albumin and very large amounts of casts in his urine. He died of spinal meningitis and no lesion was found in either kidney. In the second patient a postoperative partial suppression of urine with edema were the clinical features, and the urine showed, besides a large albumin content, numerous casts, particularly of the waxy variety. At autopsy the kidneys were found absolutely normal. A review of all the cases of nephritis which have come to autopsy at the Massachusetts General Hospital since 1893 shows that 19 have been of the acute glomerular type, five of which (all accompanied by edema), were recognized during life. Of the 17 chronic parenchymatous cases 15 were recognized during life, but in these the clinical picture was quite characteristic, without urinary examination. Of the 37 chronic interstitial cases 14 were correctly diagnosed nephritis, but in only 4 was the type recognized. Concerning the diagnosis of nephritis we may say: (1) Albumin without pus does not necessarily mean inflammation of the kidney; (2) the presence of casts is not diagnostic, for they may be found in normal urine if it is thoroughly centrifugized; (3) the estimation of solids and urea in the urine without a complete knowledge of the patient's metabolism is misdirected energy; (4) all the information to be obtained by thorough urine examination may be gotten by noting the color, the specific gravity and the amount of a twenty-four-hour specimen.

Dr. Welch, in the discussion, said that the pathologists cannot, of course, construct a clinical history from seeing the kidneys any more than the clinician can prophesy the kidney lesion. The explanation of this lack of concordance is our ignorance of the condition in the kidney on which albumin and casts depend. Cohnheim made the presence of albuminous urine depend on changes in the glomerular epithelium, and these would be difficult to see microscopically. There is, however, no mystery about the fact, which Dr. Cabot brings forth; it is simply that we cannot recognize the changes.

Dr. Emerson said that the Johns Hopkins Hospital reports of nephritis and albuminuria agree in the main with what Dr. Cabot has said. It is not true, however, that a knowledge of the percentage of albumin in urine, without a knowledge of the total amount, is of no value, for it has been shown that a kidney excreting a small percentage of albumin is in better condition than one excreting a large percentage, even if the total amount of albumin in the former urine is larger than in the latter.

**Pericarditis with Effusion.**—Dr. Thayer reported two cases of this affection. The first was a man aged twenty-five years, who had had a double pleurisy. A few weeks before he was seen by Dr. Thayer he had been attacked by dyspnea, pain over the heart, and a sudden feeling of faintness. When seen his pulse was 150 and there were marked signs of effusion into the pericardium. A needle was inserted and 1,250 c.c. of straw-colored fluid withdrawn, the pulse falling to normal and the symptoms disappearing. Three weeks later the

heart apex was in the fourth interspace 10 cm., from the middle line, and the absolute dulness was normal. Patient later developed tuberculous laryngitis. The second case was a man aged fifty-nine years, who was admitted to the Johns Hopkins Hospital in *extremis*. There was a large pericardial effusion, but no fluid could be obtained by tapping. 1,200 c.c. were removed at the autopsy table from the pericardial sac. There are three dangers in tapping the pericardium—puncture of the pleura, of the heart, or of the mammary vessels. These, however, amount to little, provided the tapping is carefully done. The question as to the best site for tapping has been much discussed. The places usually advised are, as a matter of fact, well fitted for reaching the heart, though usually chosen with the opposite end in view. Possibly the best plan is to tap at the point where the heart sounds cease to be heard, and so get below the effusion from which point good drainage may be possible. Dr. Cabot said that in his experience most pericardial taps were dry taps and that the successful ones had been those done outside the nipple line. Dr. McCrae said that he had had similar experience. Dr. Cole suggested that these cases be treated surgically from the start, and that free incision be made if necessary, so as to avoid danger of missing the fluid.

Dr. Bloodgood showed lantern slides of benign bone cysts, including the only case which has occurred in the Johns Hopkins Hospital.

#### MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

##### SECTION ON CLINICAL MEDICINE.

Stated Meeting, held Friday, December 4, 1903.

**Anchylostomiasis.**—The patient was introduced by Dr. A. D. Atkinson. A man, aged thirty-four years, who had traveled a good deal by sea and had come to Baltimore from the West Indies. He was admitted with fever, weakness and shortness of breath. On examination he was pale, with muddy sclerotics and injected eyes. The leucocytes were 11,600. Intracellular malarial parasites were found; but an eosinophilia (which had been suspected from the fresh blood examination, and was confirmed by differential count) led to careful examination of the stools, where eggs of *Anchylostoma* were found. Thymol and magnesia were given and the worms appeared in the stools in abundance. The case is still in the hospital, but has improved so much that eggs can only occasionally be found in the stools. The leucocytes averaged about 12,000 for the first six weeks, and an eosinophilia (5-11 per cent.) has always been present. Extensive poikilocytosis is also to be observed. The literature of anchylostomiasis has been extensive since the publication of Stiles' work, and it is probable that many of the cases have heretofore been called malaria. Stiles defines it as "a specific zoosporadic disease, occurring in dry, sandy regions, and caused by the hookworm." Its synonyms are Egyptian chlorosis, St. Gothard or tunnel anemia (from the fact that it was carried into Germany by workmen from the St. Gothard tunnel), brickmakers' anemia, miners' cachexia and mountain anemia. The chief symptoms are anemia, dyspnea, edema, colicky pains in the abdomen, and malaise. The disease was first fully described in Italy in 1843, but Stiles records its mention by a German clergyman as early as 1782. *Uncinariasis Americana* is, according to Stiles, a distinct species of the family *Strongyloides*. The differential diagnosis between the old and new world forms is made by definite morphological characteristics, the latter having a bipartite dorsal ray, and a dorsal conical tooth projecting into its buccal cavity.

The eggs of *Anchylostoma* lodge in the intestinal tract and develop into adults only after escaping in the feces. The embryo has a characteristic bottle-shaped esophagus and lives in water or moist earth. At the fifth day the worm undergoes a second ecdysis, then infects the human being, and, after a third ecdysis, grows into the adult worm, with an esophagus capable of sucking blood. Anemia is always present. Hemoglobin in the various series of reported cases has averaged about 10-20 per cent., red blood cells about 2,000,000, and whites about 6,000. The anemia is not easy to explain. It is not always in proportion to the number of worms present and is probably not due to the sucking of blood by the parasites. Boycott and Haldane say that it is due to a hydremia, just like chlorosis. A toxin acting on blood or blood-organs has also been suggested as the cause, and the pathological liver changes, with the eosinophilia, seem to support this view. The pathology of anchylostomiasis shows itself in fatty kidneys and liver, catarrhal stomach, hemorrhages of ileum and jejunum, reddened and enlarged Peyer's patches, eosinophilic infiltrations in the intestines, and the bone marrow of pernicious anemia. Reddened areas appearing suddenly in the skin (the "bunches" of Cornwall miners) may be present and may lead to the so-called "ground-itch." The treatment consists of the administration of thymol in xx to xxx-grain dosage, followed by a purge, and repeated until the eggs appear in the stools. The prognosis is good in all but young and badly nourished children.

**Pathological Specimens.**—Dr. W. R. Stokes showed these. The first showed typical tuberculous areas in the epididymis. In this case incision had been made into an epididymitis and pus-containing tubercle bacilli, but no gonococci were found. The second specimen was of a fracture of the first rib. The injury had resulted from the patient's being jammed between two freight cars, and had been associated with a fracture of the clavicle and laceration of the stomach. No other ribs were broken. The specimens of two cases of acute endocarditis were also shown, both affecting the aortic and mitral valves. The last specimen was a cirrhotic liver taken from a patient seen in May, with a large palpable liver and a history of epistaxis. A diagnosis of alcoholic cirrhosis was made. At autopsy the liver showed typical atrophic cirrhosis and the granular kidneys of chronic interstitial nephritis. Several varices were found around the cardiac end of the stomach, which, when squeezed, showed several small punched-out ulcers. The stomach was full of blood and death had evidently been due to leakage from the ulcers below the dilated esophageal veins.

Dr. Blake said in reference to the second specimen shown that fracture of the first rib was very rare, except from bullet wounds or in extensive injuries, and he did not understand the mechanics of the occurrence of this fracture without other lesions.

#### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held at the New York Academy of Medicine, December 14, 1903.

The President, Andrew H. Smith, M.D., in the Chair.

**Water Anesthesia in Operations about the Rectum, Anus and Buttocks.**—A paper on this subject was read by Dr. Samuel G. Gant. More than 150 cases of rectal affections radically operated upon by him had shown that sterile water, properly injected, is a reliable anesthetic; and he was convinced that this is the most desirable method for these operations, for the reason that it produces an adequate degree of anesthesia, while



in no instance has its employment been accompanied or followed by any of the annoying and dangerous complications frequently met with under the use of cocaine or similar drugs. He had been induced to try distention of the tissues with water to produce local anesthesia in consequence of the following observations: (1) Cocaine, eucaine and other similar solutions were practically inert when distention was not obtained, because of the escape of the fluid through an ulcer, fissure or sinus; (2) very weak solutions of the same drugs were apparently as effective as strong ones in all cases where complete distention of the tissues was possible. Among the cases in which Dr. Gant has successfully employed water anesthesia are included radical operations for protruding and non-protruding internal hemorrhoids, cutaneous and thrombotic hemorrhoids, polypi, prolapsus ani, fistulae of various kinds, and marginal and follicular abscesses; excision of perineal cysts, sacral dermoids, and lipomata of the buttocks; removal of foreign bodies beneath the skin and mucosa; division of the sphincter in cases of constipation where divulsion proved ineffective; fixation of an elongated sigmoid to the anterior abdominal wall; colostomy and exploratory laparotomy.

**Technic.**—The only requirements are sterile water and a hypodermic syringe fitted with a long, fine, sharp-pointed needle, which, with the syringe itself, should be sterilized. When an incision through the skin is required, a fold of the integument at one extremity of the line of incision is compressed for a few seconds between the thumb and forefinger; this diminishes and prevents the momentary pain which may be caused by the first injection. The needle is then introduced between the layers of the skin, and a few drops of water slowly injected; immediately on the appearance of the small, localized swelling thus produced cutaneous anesthesia should occur at this point. Next, the needle is slowly inserted further and further along the line of the cut to be made, care being taken not to go entirely through the skin, and the water is gradually injected as before. When the syringe is emptied, it is refilled and the needle reintroduced within the anesthetized area; the injections being repeated until the distention extends the entire length of the line of incision. The needle is then plunged through this distended line and subcutaneous injections are rapidly made until a firm, whitish, ridge-like swelling, about the thickness of the index finger, is produced. The skin and underlying tissues can now be incised without pain in almost every instance. For external thrombotic hemorrhoids it is requisite to make the injection only between the layers of the skin overlying the clot to be removed, while in excising external cutaneous hemorrhoids both the skin and tumors should be distended tightly. Large internal venous or capillary hemorrhoids may be completely anesthetized within thirty seconds by injecting directly into the center of each tumor sufficient water to distend it tightly and cause it to turn white. Any affection which requires operative procedure to increase the lumen of the anal outlet, or which necessitates incision of the sphincter, may be operated upon under water anesthesia. After the skin and mucous structures up to the anal margin have been distended, injections are made into the mucosa, the submucosa, the external sphincter, and, if necessary, the internal sphincter muscle.

**Advantages.**—(1) In the majority of rectal operations there is no necessity of requiring the patient to submit to the annoyance and expense of entering a hospital and undergoing general anesthesia. (2) The rapid distention of the tissues to be incised or removed enables the operator to work quickly, and as the patient is not confined to bed during the after-treatment, but can come to the office to be dressed, it economizes the surgeon's

time and labor. (3) No annoying or dangerous complications of sequelae have been observed. It eliminates the danger to life from the heart, lung and kidney complications, which may result from the use of ether or chloroform, and it avoids the increased pain and hemorrhage due to straining and vomiting after general anesthesia. (4) Experience has shown that the pain and bleeding following this method are less than when medicinal local anesthetics are employed. (5) The only requirements are a hypodermic syringe, a suitable needle, and boiled water. (6) The radical treatment of hemorrhoids can be so easily carried out in the physician's office, and with so little danger and inconvenience to the patient, that it should regulate to oblivion the vaunted injection treatment, which is so dangerous and uncertain.

**Limitations.**—This method is not practicable for extensive operations such as are required for excision of the coccyx, the removal of large tumors by excision, or resection of the bowel, or for the relief of complete prolapsus recti, complex, horseshoe, rectovesical, recto-urethral and rectovaginal fistulae, very extensive abscesses, or strictures, congenital malformations, or other affections located in the upper rectum; neither is it applicable for opening the abdomen in cases where there is a thick layer of fat and the tissues are so loose and flabby that a proper degree of distention cannot be secured.

**How it Acts.**—As the anesthetization of the part occurs almost instantly upon complete distention of the tissues, it would seem probable that the anesthesia is produced by the pressure upon the nerves and their endings caused by the distention. If the pressure is too quickly induced, however, by too rapidly injecting the water, it may cause considerable temporary discomfort, amounting to pain in extremely sensitive subjects.

**The Puerpera: her Care and Comfort During Convalescence.**—This was the title of a paper by Dr. A. Ernest Gallant. Assuming that labor has been conducted on aseptic lines, the perineum guarded or repaired, etc., what, he asked, could be done to prevent the muscular weakness and abdominal distention, with subsequent visceral ptosis, which so often compel women to seek relief? Frequently the patient, when she gets up out of bed, complains for some days of dizziness, vertigo and inability to walk, and some months later she begins to suffer from gastritis, headache and backache, with attacks of nausea, vomiting and pain, the latter usually referred to the right side. On an examination *with her clothing on*, we find a distinct change in the contour of the anterior abdominal wall—flattening from the sternum to the umbilicus and a bulging from that point to the symphysis—which is caused by prolapse (or dilatation) of the stomach, large and small intestine, often the right kidney (rarely the left), the liver and spleen—the enteroptosis of Glenard. In at least 50 per cent. of multiparae seen by the gynecologist, there is found uterine displacement, due, in the author's opinion, to the dorsal posture while in bed, in consequence of which involution takes place with the uterus resting against the sacrum. In order to illustrate the prophylactic weakness which he advised, Dr. Gallant related a case in his practice. An abdominal binder was very tightly applied and was worn continuously by the patient while in bed and for two weeks following. For the relief of soreness she was given massage (lasting half an hour), and a weak alcohol bath daily for three days, and on the fourth, fifth and sixth day to these were added passive movements of the arms and legs. From the seventh day onward she was directed to raise and lower the trunk and legs alternately, and after getting out of bed to practise light calisthenics. In order to prevent the recurrence of a former uterine displacement she was ordered not to lie on her back, but on the side



or abdomen, and when the uterus had sunk down to the pelvic brim the vagina was filled with sterile gauze, which was changed every forty-eight hours. The tamponing was maintained for two weeks; when a well-fitting pessary was introduced. The patient got out of bed on the tenth day, and was able to walk about with freedom, stating that she felt much stronger than after her first confinement. Before she became pregnant with this second child she had developed a well-marked suprapubic prominence, and she was directed to secure a corset designed especially for the prevention and relief of visceral ptosis, but, owing to her good condition, she neglected to do so until six weeks after getting up, when she expressed herself as much surprised at the degree of comfort, support and improvement in her figure which it afforded her. In connection with the paper Dr. Gallant demonstrated the use of the corset referred to, and presented a specimen of post-partum tubo-ovarian abscess which caused hydronephrosis. The patient made a good recovery after operation.

Dr. Austin Flint, Jr., in discussing the essayist's paper, said that Dr. Gallant was rather radical in his recommendations; at the same time there was much truth in his position. Many accoucheurs, he believed, had observed great benefit from the patient's not lying always on the back, but personally he would not advocate a change of posture as early as Dr. Gallant. The assumption of the abdominal position did not seem to be required before such a time as the uterus could sag over backward. As to the exercise spoken of, he had had no experience, but he would be somewhat timorous about advising it. In the treatment of enteroptosis and movable kidney he objected to the use of a rigid corset, as it tended to prevent a free play of the muscles. He had had patients who got on better without corsets. He would substitute for them suitable exercises, not massage. Speaking of tamponing the vagina, he expressed the opinion that all women should be examined after childbirth a little earlier than was now customary—that is, between the fourth and sixth week, before the uterus becomes small, but after the lochia has entirely ceased and after the uterus has returned to position and regained tone. He was accustomed to employ large glycerin tampons, with either boric acid or tannin. A pessary might or might not be required.

**Prevention Rather than Treatment.**—Dr. Edward A. Ayers said he felt disposed to consider the means of preventing subinvolution and displacements, rather than their treatment. He believed that one of the most frequent causes of such evils was the incorrect use of the forceps. There are, in fact, very few cases in which the forceps was required, and it was no doubt an error in obstetrical teaching to advocate their too general employment. If the instrument was applied when there was incomplete dilatation of the lower segment of the uterus, and traction was made in such a condition, the practical result was the dragging down of the uterus. Consequently, there was great relaxation and a marked tendency to prolapsus. We should, therefore, be extremely cautious in all such work, and pains should be taken to secure dilatation of the lower uterine segment by the use of the hand before applying the forceps. No fixed rules could be set down, he thought, as regards the general care of the puerpera. In some cases she ought to sit up early, and in others not. A relaxed condition of the abdominal wall might be due to the anemia existing during pregnancy.

**How Long Should the Patient be Kept in Bed?**—Dr. Eugene Coleman Savidge said that he would respond briefly on one point of the many covered by the paper of the evening, namely, as to how long a woman should be kept in bed after childbirth. His views represented an evolution. When he was interne at the

Sloane Maternity the rule was to put the infant in the mother's arms and send her out on the tenth or eleventh day, and, as in the case of all institutional procedure, to the young interne that seemed the proper thing. When he afterward worked in the female out-patient department of Roosevelt Hospital across the street, and got so many of these Sloane cases with retroversion and prolapse, he took the view that three to four weeks in bed after childbirth was the proper rule. He remembered discussing the matter with Dr. Tucker of the Sloane at that time. He believed that now the rule at the Sloane was to keep the patients much longer. When, later, he began studying the relation of muscular relaxation to general enteroptosis, retroversion, prolapse, he reached a conviction that seemed contradictory at first: Too short a period was wrong, and too long a period was wrong. What, then, the alternative? Not to allow a woman to walk about with a subinvolted womb, and yet not to keep her confined at the expense of the general muscular system. He believed the solution was in permitting an early rising from childbed, say ten days, and then a routine tamponing under the heavy uterus from stopping of the lochia until the time of complete involution, seeing to it that the woman held her tone in the vasomotor and muscular systems. Once tried, the women themselves are the best advocates of this plan. The speaker further said that if "consistency was the foible of the little mind," it was a good characteristic to discard in the face of new light.

Dr. H. P. De Forest said he had understood that the subject to be discussed was the care of the normal puerpera. It had not been his experience that all women required treatment on account of abnormal conditions. In fact, most women seemed to get along pretty well after childbirth. He had studied under two men whom he considered masters in obstetrics, King, of Washington, and Tucker, of New York, and had always tried to follow in their footsteps. He believed that the nearer we approached to nature the better would be the results secured. In normal cases he did not think it necessary to tampon the patient. It was advantageous for the woman, he thought, to assume within a few days other positions than the dorsal, and if she would lie for a considerable portion of the time on the abdomen, the uterus would fall forward. As to pathological conditions, he believed with Dr. Ayers that the high forceps used before sufficient dilatation did as much to cause subsequent trouble as the labor itself; it was necessary, therefore, that we should make a pretty full dilatation of the birth course. In order to avoid bad results the woman should be watched and attended very carefully after childbirth, and he was in the habit of furnishing to his patients a complete memorandum of the supplies which might be needed during the puerperium.

**Each Case to be Treated According to the Existing Conditions.**—Dr. Franklin A. Dorman thought the paper and discussion were not strictly in accordance with the title announced. As to faulty involution, the size of the uterus varied considerably in different instances, and every careful physician should examine the extent of the involution from day to day. Every case should be judged by itself, and it was well to remember that the process of involution depends to some extent on previous pregnancies. If there had been injuries, such as lacerations, it would be very apt to be retarded thereby. He agreed with Dr. Flint that when the uterus had sunk absolutely within the pelvis, and not before, was the time when displacements were to be guarded against. The patient should be allowed to move from side to side, as she felt inclined. The binder seemed to be injurious after the first three or four days, and might tend to produce retroversion.

**Two Prophylactic Measures.**—Dr. James D. Voorhees spoke of two prophylactic measures against subinvolution. The idea was always in the mind of the accoucheur of letting out the head, if possible, without a nick or laceration of the perineum, while no attention was paid to the *levator ani* muscles. These might be torn, and as nothing was done to remedy the evil, undesirable results might follow. Mucous membrane tears were also apt to be neglected, and these should be carefully repaired. He thought the management of the uterus itself important. The physician should be absolutely sure when he left the case that no clots were left behind in it. In the main he agreed with the ideas of Dr. Gallant, but he had had no experience with the corset.

**Patients Should be Cautioned against Over-exertion after Getting Up.**—It was important, he thought, that the patient should be cautioned against doing too much, or too soon, after she was up and about. Many physicians were careless in regard to this point, and he had known of various instances in which women had blamed their medical attendants for uterine troubles attributed to the fact that they had been allowed to play golf or take other active exercise too soon.

Dr. Samuel M. Brickner thought injury was likely to result from the use of the binder after the third or fourth day. He had never tried exercises while the patient was still in bed, but he had had some experience with the corset. He desired to call attention to two points: (1) It not infrequently happens that the patient is unable to urinate spontaneously while lying in bed, and as it is manifestly impossible for the physician to be present whenever it is necessary to pass the catheter, this duty devolves upon the nurse. Even the best of our trained nurses are not too conscientious about the disinfection of their hands, and most nurses are prone to be very careless in regard to the matter. In consequence of a somewhat unfortunate experience on this point he now insisted that the nurse should invariably wear gloves when catheterizing the patient. (2) The patient should be permitted to lie on the side very soon, and after six or seven days the abdominal posture should be advised. It should be the constant aim of the accoucheur to restore the puerpera to the sound, normal condition in which she had been before the pregnancy.

Dr. Gallant, in closing the discussion, said that the time to prevent a thing is to prevent it when it begins. The necessity of catheterization may be avoided by permitting the patient to get out of bed to urinate. No trouble will result, and there will then be no danger of cystitis from the catheter or the nurse. As regards Dr. Flint's criticism, he thought means should be adopted early to prevent the uterus from sagging backward, for unless this was done the organ was apt to acquire the habit, so to speak. If we place the patient on the abdomen it is not necessary to tampon so early. As regards the Sloane Maternity patients frequently having to come to the Roosevelt Clinic, as mentioned by Dr. Savidge, he believed that the troubles referred to were not the result of the women getting up too soon, but were due to the fact that they were not in good condition before labor.

**The Value of Blood Counts in Very Young Children.**—In an article on the practical value of blood counts, W. GORDON (Bristol Med. Chir. Jour., Sept., 1903) notes that in very young children severe anemia may result from trifling causes; that leucocytosis may also result from slight causes, and is apt to be a lymphocytosis; that the spleen is apt to enlarge in any severe anemia; that nucleated red blood cells are more commonly found than in adults; that hereditary syphilis and rickets cause some of the severest anemias.

## THE NEW YORK ACADEMY OF MEDICINE.

### SECTION ON GENITO-URINARY DISEASES.

*Stated Meeting, held Thursday, December 17, 1903.*

The President, Andrew H. Smith, M.D., in the Chair. Symposium on the Treatment of Hypertrophy of the Prostate.

**When and How Shall We Operate for the Relief of Symptoms Due to Senile Hypertrophy of the Prostate.**—Dr. Paul Thorndike, of Boston, read this paper, which will be published in a subsequent issue of the MEDICAL NEWS.

**The Best Method of Operating to Effect a Radical Cure of Senile Hypertrophy of the Prostate Gland, Based on a Study of 141 Radical Operations.**—Dr. Orville Horwitz, of Philadelphia, read this paper and, from a review of the results obtained, believed the following deductions were justifiable: (1) A routine method is not applicable to the treatment of prostatic hypertrophy; every case is a law unto itself and the treatment will depend on the various conditions presented in each individual case. (2) The dangers attendant on the daily catheterism are greater than those of a radical operation performed at the onset of the symptoms caused by the obstruction. (3) The proper time to perform a radical operation is reached as soon as it becomes necessary for a patient to resort to daily catheterism. (4) The gratifying results obtained by a number of the operations in many cases demonstrates that the Bottini operation is one of great value. It is applicable to a large percentage of cases; which, if properly selected has proved to be the safest and best method of relieving an obstruction caused by prostatic hypertrophy. In those cases in which a stone in the bladder is associated with a prostatic enlargement, litholopaxy may be performed in conjunction with a galvanocautery prostatectomy. (5) A complete prostatectomy is justifiable if performed early before the individual is broken down in health and secondary complications have supervened. In early operation the results are most satisfactory, recovery rapid, and mortality varying between five per cent. and seven per cent. (6) A complete prostatectomy in feeble elderly patients with long-standing obstruction and secondary complication, the prognosis is grave and the mortality ranges between fifteen per cent. and eighteen per cent. If the bladder in these cases happen to be hopelessly disabled, the results obtained by the operation are negative. Cases of this description are only suitable for suprapubic drainage. (7) In ninety per cent. of all cases the gland can readily be removed by means of a median perineal incision. The perineal operation recommended by Bryson is considered the operation of choice. (8) Complete suprapubic prostatectomy is shown to be more dangerous than perineal operation for obvious reasons. A suprapubic prostatectomy is safer if combined with perineal drainage. (9) Partial suprapubic prostatectomy is indicated in such cases as where a valve-like lobe exists which interferes with urination, or where there is a partial hypertrophy of one of the lobes. (10) A perineal prostatectomy is best suited for those cases where the enlargement of a lateral lobe has a tendency to progress towards the rectum, to obstruct the urethra, or project backward into the bladder. (11) A prostatectomy is always attended with more danger than the Bottini operation and the convalescence is more prolonged. In suitable cases the latter operation is therefore the one of choice.

Dr. L. Bolton Bangs said the subject was a very complex one. Any one with much experience with old men would be obliged to make a broad discrimination between classes that were denominated "hospital classes" and those that were well-to-do and intelligent.



In the former, from want of intelligence or opportunity for cleanliness, one was unable to carry out palliative methods and, therefore, something radical in the way of treatment must be chosen. To him the question of operation was not so difficult as to decide when and upon whom to operate. He believed that the primary retention was not a sufficient indication for the radical treatment of the individual. There are men in whom catheter life has been established, who have had more than one attack of retention whose urine shows scarcely any infection, whose residual urine is moderate in amount (five ounces or less), and whose nocturnal urination is rarely over twice, usually once. Such a patient, using the catheter once, twice, possibly three times in the 24 hours, may go on year after year and the residual urine may become reduced from four or five ounces to one ounce, and the patient really improved in all respects by appropriate treatment. A patient had reported at his office that very day who, four or five years ago, had had five ounces of residual urine; he now had only one ounce. He passes his catheter to treat his bladder only once a week and "lest he forget" he passes it every Sunday. If he had not observed such cases before he believed he would have immediately advised some form of radical relief when the patient first consulted him. Therefore, he believed that each case should be studied by itself. These individuals should not be hurried or urged into operation even when the conditions led to a vague fear or dread of trouble in the future. One should see to it that they be kept resolutely and positively under observation in order that the golden moment for operative intervention should not be lost. A careful diagnosis must be made. He did not think that every man with nocturnal frequency of urination, and with a small amount of residual urine, should be considered a subject of organic progressive enlargement of the prostate. Recently in reviewing some cases in the literature he found one patient who had been subjected to prostatectomy, in whom there had been frequent and painful urination, some blood, only two drams of residual urine and a stone in the bladder. He said this was not careful diagnosis; if the right deduction had been made and the stone alone removed, he ventured to say that the symptoms would have disappeared and the residual urine with them. Again, he said that many men, particularly among the higher classes, approaching sixty years of age, with habits of high living, abundance of champagne and frequent sexual indulgences, present themselves with a moderate amount of nocturnal frequency and of residual urine; these men need neither catheter life nor radical operation. Here there would be found engorgement of the prostate or prostatitis, and under good hygienic living, with regulation of their habits, particularly as to the use of alcohol, tobacco, coffee, exercise and sexual relations, the residual urine would disappear and there would be no necessity for either the catheter or radical operation. He had had experience with prostatectomy and with the Bottini method and was inclined to agree with Dr. Thorndike that perineal prostatectomy in properly selected cases was the operation of choice. One could not ignore the experiences and results that have been obtained by the Bottini method which certainly was applicable to a certain class of cases. The choice of operation must be determined upon the merits of the case itself. As a result of his experience he believed there was a class of cases which would be greatly relieved and, in some, positively cured, by this method and with a minimum of risk. Regarding the mechanical performance of the operation he said that the Bottini operation required more skill than the operation of prostatectomy. The latter was within both the sight and touch of the opera-

tor, and if one stripped back the capsule of the prostate with the rectum as suggested by Murphy, there would be less danger than ever of injuring the rectum. The Bottini method required tactile dexterity and experience in order to do it properly. Regarding subsequent events he did not think enough stress had been laid upon the conditions which might follow these radical operations. He said he had seen patients with a small amount of residual urine who were moderately comfortable with the catheter and others who did not need the catheter. Subsequent to his examination they had been subjected to prostatectomy and been made miserable for life, either by permanent incontinence of urine, by loss of the sexual function or by permanent fistula. When we suggest to a patient whatever we deem necessary for his cure or relief, he said, we should bear in mind and tell him the possibilities. He had rarely found permanent incontinence follow the Bottini operation. Thinking over the suggestion made by Dr. Murphy, of Chicago, it is possible that permanent incontinence is due to the fact that the prostatic urethra had been dilated and had formed a secondary pouch into which the urine found its way and from there dribbled. Dr. Murphy suggested that during a perineal prostatectomy a part of the prostatic urethra should be excised and the edges brought together, thus reducing the size of the dilated part.

Dr. Willy Meyer said he had listened with great interest to the most valuable papers presented by the guests. They had covered the ground so thoroughly that he was sure every one in the audience was able, from what he had heard, to form a proper conception of the present status of prostatic surgery. What he thought was expected of those who had been requested to participate in the discussion, was, to state their views on basis of their personal experience in the treatment of this frequent and often so terrible disease of men. He said he was of the opinion that prostatectomy was the most surgical and the most radical operation, in short, that it was the ideal treatment of prostatic enlargement. If it be true, and we know that it is, that the trouble of a prostatic was a mechanical one, that the obstruction caused by the gland was doing all the mischief, then it stands to reason that the total removal of such tissue represented the best cure. Thanks to the arduous labors of many of our colleagues the technique of the operation had been perfected to such a point that they were enabled, in most cases, to avoid future complications. The procedure was, therefore, a comparatively safe one. To-day he advised prostatectomy wherever he found no contraindications, and had personally done the operation, by the perineal route, in nine cases; in eight during the last year. He found it the typical and safe operation which his former experience with operations on the prostate by this route, *i.e.*, opening prostatic abscesses on antiseptic principles, removing a tuberculous sequestrum from the prostate, and other operations upon the organ that had become chronically inflamed by gonorrheic infection, had taught him to consider it. As regards the age at which prostatectomy may be safely advised, he had considerably extended the limit, in fact, he believed there was no limit. So long as the patient's *general condition* warranted it, they need not hesitate about advising the operation. In cases where general anesthesia did not seem safe, he used spinal anesthesia, for which latter prostatic surgery he believed furnished a great field, especially in old patients. Its availability will certainly tend to widen the indication for prostatectomy. In one of his patients, operated upon in November, 1902, spinal anesthesia afforded him ample time for the enucleation of the prostate and the extraction of a large calculus from the bladder. The patient was presented,



cured, before the New York Surgical Society, in January last. In his last case he used Dr. Young's metal retractor and was delighted with it. It was simple and clean, and was of great help to him. It permitted of any amount of traction, enabled the operator to avoid injuring the urethra and ejaculatory ducts and, incidentally, rendered excellent service as a hemostatic, by compression. Still, it must be said that not every prostate could be pulled down by a retractor into the level of the skin wound. He had also always incised the capsule of each lateral lobe by a vertical incision and tried to preserve what Young called the "ejaculatory bridge." Yet, important as he considered this point of keeping absolutely intact the prostatic urethra and important organs at the vesical neck, he did not believe that the preservation of this bridge alone would always determine the future maintenance of erection. Innervation also played a rôle. Further observation would have to determine this point. At all events, prostatectomy must be regarded as the operation of choice. On the other hand, they must give due recognition to the fact that there are cases in which the cutting operation was absolutely refused, or where special circumstances were present, rendering it contra-indicated. It was here that Bottini's operation filled its mission. The gentlemen who recognized prostatectomy only, would, in such cases, condemn the patient to the use of the catheter for life, or insist upon the bloody operation, and thus might take the life of patients who might well have been saved by means of Bottini's operation. He had recently tabulated his cases of enlarged prostate treated by Bottini's operation within the last five years (October, 1897, till October, 1902), 59 in number. He was able to trace 34. Of these 28, or 82.4 per cent. were cured or materially benefited; and of fifteen patients who had used the catheter regularly, 10, or 66 per cent., laid the same aside permanently. Of 23 cases that could be utilized with reference to the question of the maintenance of sexual power after Bottini's operation, the power of intercourse was preserved in 20, or 86.9 per cent. It was more or less interfered with in three. Has such an operation not its place in prostatic surgery? Does it deserve to be cast aside as worthless, as is done by so many who have never tried it or perhaps tried it once? He would be sorry if in this progressive country the truth with regard to the value and place of Bottini's operation should not be fully recognized. He was much interested in hearing Drs. Thorndike and Horwitz state their opinions with reference to Bottini's operation in such an impartial way. He said there were two useful methods for helping prostatitis, and the profession has no right to speak of prostatotomy *versus* prostatectomy, but ought to say that it has prostatectomy and galvanocauteric prostatotomy. For these two methods do not oppose, but complement each other in the radical treatment of the enlarged prostate gland.

Dr. Chetwood said that the history of the surgery of the prostate gland of ten or fifteen years ago described the same operations, generally speaking, as were performed to-day, even the special technic of galvanocauterization. The same questions were under discussion then, but with less knowledge, between suprapubic and perineal operation; and this same discussion had continued ever since. The result of this long-continued discussion of the subject had been beneficial, and there were probably many surgeons to-day and there will be more in future, who would take neither side of this question, and who believed that most of the operations for prostatic hypertrophy had value, and the choice of technic was a question to be decided upon the individual peculiarities of each case. With such ample support as the operations of supra-

pubic and perineal prostatectomy had, there was no need of any additional testimony in their favor. He said he had particularly to speak of his own predilection for the use of the galvanocautery in prostatic surgery and, in connection with it, adequate vesical drainage. While he had a strong belief in the value of this method, he thought that its use should be combined with an opening into the bladder, not only for drainage, but for examination before and after operation. The Bottini technic had proven satisfactory in a fair number of cases, especially in the hands of such adroit operators as Dr. Willy Meyer and Dr. Young; yet he felt that the great advantage of drainage through an opening into the bladder, and of determining accurately the nature and size of the growth and the result of the incision was superior to any that may be claimed for an operation which avoided incision. He also would raise his voice in opposition to the practice of extirpating the entire prostate gland when only a very small portion of it was at fault in the causation of symptoms, when it had been so frequently demonstrated that the removal of only the portion of the gland which obstructed the bladder outlet was sufficient to bring relief from symptoms. There had occurred undoubtedly unfortunate results due to the too free removal of the prostate during operation, such as recto-urethral fistula, several cases of which he was personally familiar with, and urinary incontinence. It was fair to state that if these complications occurred they were more likely after extensive removal of tissue. He was not committed to the galvanocautery operation by the perineal route, although most of his cases had been done in this manner. A number of cases could be better reached through a suprapubic opening, and the use of the galvanocautery through this route had decided advantages in some instances, notably those with long urethra and deep perineum. He said he had had constructed a special instrument, upon the same lines as his perineal incisor, for use through the suprapubic opening. If the special technic of galvanocauterization, either with or without an opening in the bladder, lessened the danger of operation in any stage of prostatic enlargement and aided in settling the question *when* to operate, it must be given a position of high esteem in prostatic surgery. Personally, he believed that incision into the bladder enhanced the value of galvanocauterization and minimized the danger of operation.

Dr. Hugh H. Young, of Baltimore, said that in pursuance to the request of the chairman he had tabulated his operative cases which he found were now about 150 in number, divided as follows: prostatectomies, 55; Bottini's, 85; castrations, 2; various operations, 8. Castration had been performed twice, under cocaine, in men who were very old and feeble, and in whom the prostate, although very large, did not offer obstruction to urination, but caused severe pain in the rectum, buttocks and thighs by pressure against the nerve trunks situated in the deeper portion of the pelvis. In one case the result was almost magical, the prostate atrophied and the sciatica and other pains, which had been very severe, promptly disappeared. In the other, the prostate proved to be carcinomatous, and there was no result. Of the 85 patients on whom the Bottini operation was performed six died, three as a result of the operation, and three from other causes three to six weeks after the operation. Of those that lived, in two cases no benefit was obtained, in two cases micturition was restored, but the catheter was necessary twice a day on account of a large residual urine. In four cases there was more or less incontinence of urine. Two cases recovered from this after six months. In five cases, with middle lobe enlargement, Dr. Young

operated by a method described by him in 1900, the cautery incision being made obliquely, on each side of the median lobe, thus cutting off its blood supply and leading to its rapid atrophy with excellent results. In a number of cases the prostate was of the small sclerotic variety and it was necessary to use the small blade of his modified instrument with multiple blades, but in most cases either blade No. 2 or No. 3 was found the most suitable. As a whole, the results of the Bottini operations were extremely satisfactory, and in a class of patients often very old and weak, the majority being over seventy years, and five were over eighty years of age. Several patients who had used the catheter for from seven to fourteen years gave up its use altogether. In about one-third of the cases calculus was present, and lithopaxy necessary, both operations being done under local cocaine anesthesia. The operation was never done without having previously mapped out with the cystoscope the nature of the intravesical prostatic outgrowths, a procedure which he considered very important in determining the character of the operation, the choice of blades and position and length of the cuts, the presence of calculi, etc. In two cases only was there any serious hemorrhage subsequent to the operation, one came on after six weeks and the other a year later. In the latter case, although the prostate projected into the bladder as two huge intravesical tumors, the result of the operation had been perfect, there being no residual urine present. A perineal prostatectomy was done on account of the hemorrhage. Another case was that of a man seventy-eight years of age who was brought into the hospital with complete retention of urine and in uremic coma. The urine was very foul and contained granular casts and albumin in large amount. He was treated by catheterization, and blood letting, intravenous, subcutaneous and rectal saline infusions, and after being at death's door for a month was finally operated upon by the electro-cautery and is now, two years later, well and about town. It is in cases such as the latter that it is doubtful if any other procedure is as safe and sure as the Bottini, and it was not in these cases in which the few failures and fatalities resulted from the operation. But the presence of the occasional failures shows that perineal prostatectomy is the more certain procedure and therefore to be chosen in many cases. The prostatectomy cases were as follows: Sixteen by the suprapubic route with three deaths—only one attributable to the operation. Thirty-six by the perineal route without a death attributable to the operation (one occurring from embolism when the patient was cured and almost ready to leave the hospital not being counted). In three of the perineal cases the combined operation of Alexander had been used, but the suprapubic incision which was deemed necessary to push the prostate down into the perineal wound, so that it could be reached for enucleation below was always objectionable. The rubber balloon tractor of Dr. Parker Sims had been a step in the right direction, the object being to pull the prostate into the perineal wound. Dr. Young had devised a tractor of metal which seems to answer every purpose, and the 33 last perineal prostatectomies had been operated by this instrument, and according to a technic recently published by him.\* He believed that we now receive our patients in much better condition than formerly, since practitioners are realizing the importance of curing these cases early and avoiding infection and its train of sequelæ, and he personally had many cases demanding operation in men between forty-five and sixty years, in robust physical and sexual condition, and it had seemed highly advis-

able to preserve their sexual powers if possible, and by the technic which he practised he was able to preserve in its entirety the prostatic urethra and the ejaculatory ducts in the great majority of cases, as shown by the subsequent presence of spermatozoa on ejaculation. It was not necessary to do an extensive dissecting operation—the central perineal tendon and the small rectourethral muscle were the only muscular structures divided and both insignificant. With good retraction of the wound it was not necessary to divide important structures and with his metal tractor drawing the prostate down the entire posterior surface was so close to the skin surface that it was an easy matter to make the incisions so as to leave a median bridge of tissue which contains the ejaculatory ducts and to enucleate the lateral lobes without injury of these or the urethra. After this, if a middle lobe were present, it was an easy matter to rotate the tractor 90 degrees, engage the median lobe and deliver it into the left lateral cavity, where it could be easily enucleated, generally without injuring the vesical mucous membrane covering it. Even in cases with huge intravesical outgrowths of the prostate it was possible to remove them by the perineum. By means of the tractor large projections of the lateral or middle lobes could be caught, drawn downward and enucleated through the perineum. In a recent case, aged eighty-two years, the prostate filled the bladder and presented above the pubes as big as an orange, and the weight was 250 grams. Spinal anesthesia by the method of Morton was used, and had been found so satisfactory in the past three months that he advised its use in all patients in which ether was contra-indicated either from age or other conditions. One-fourth of a grain of dry sterile cocaine dissolved in the spinal fluid in the syringe sufficed for nearly all cases, and made the operation possible in cases where general anesthesia would have been dangerous, as shown by Goodfellow. Bryson's method of making an extravesical suprapubic incision was not longer necessary, since it was possible by means of a perineal tractor to deliver the lobes into the perineal wound. Suprapubic prostatectomy provided poor drainage and had proved more bloody, more in the dark and much longer in convalescence. He believed that very old men who had learned to use the catheter well and were comfortable should not be disturbed. But when a patient presented himself with a healthy bladder and was in fit shape for a radical cure—prostatectomy or Bottini—he could not agree with Dr. Thorndike that such a patient should be given a catheter to use, and that the radical operations should apply only when the catheter had failed. Continued catheterization invariably led to infection, which an early prostatectomy could have prevented, but a late one could never cure. Taken early, perineal prostatectomy was a very benign procedure, and should be performed carefully and conservatively, with due regard to the urethra and the ejaculatory ducts.

Dr. Howard Lilienthal said that his experience in these cases was limited to 19 patients upon whom suprapubic prostatectomy had been performed. Out of the 19 cases he had had but one death, and this patient was uremic at the time of operation. It was his opinion that a technical error had been committed in performing an operation under such circumstances, although the indication was concurred in by very competent counsel. The patient was aphasic, the urine contained a low percentage of urea, there was arteriosclerosis. He considered that he was an extremely bad risk for any kind of an operation. Dr. Lilienthal wished to speak in favor of the suprapubic prostatectomy. Out of 19 operations the patients recovered with perfect function in 18—a very good showing. He thought a

\*Journal of the American Medical Association, Oct. 26, 1903.



great deal depended upon the individual who performed the operation, and, with the results he had obtained, he saw no reason for making a change in his method. Among the advantages of the suprapubic route he referred to (1) speed; this he considered a very important factor, especially in old people. It stood to reason that an operation which required but eight minutes was a much safer one than that which required one-half an hour or longer. (2) The incision was made through unimportant structures, through the skin and fascia, the median tendon of the abdomen, and through the bladder. (3) This gave the best opportunity for exploring the interior of the bladder. Sacculation of the bladder with its important prognostic import could be discovered after the suprapubic incision. In three of his cases stone had been found. He had had serious hemorrhages in 2 out of the 19 cases. In one of these he had started to do perineal prostatectomy when a tremendous hemorrhage occurred, similar to those which had on other occasions in this individual, followed faulty catheterization from injury to the bulb. He abandoned that route for the suprapubic one and the patient made a very good recovery. He believed hemorrhages from the bladder itself could be checked by packing the sac which the prostate had occupied. In reviewing his method he stated that with the catheter in the bladder and an atomized bulb attached a median incision through the linea alba was made. The organ was then distended, being pumped full of air. The bladder was then opened with a small puncture with a knife; this opening was stretched with dressing forceps sufficient to admit two fingers. The bladder was then explored thoroughly and carefully and enucleation of the prostate followed in the customary manner, after incising the prostatic mucosa. He said these patients suffered from no shock after this procedure. His patients varied from fifty-two to eighty years of age and all made good recoveries. The most feeble ones he had had out of bed on the third day. He used siphon drainage. As another advantage he said that the bladder by its adhesions to the suprapubic scar drained in such a manner that, even if one did not take out the prostate, the pouch behind the enlarged prostate was rendered more shallow and emptying of the bladder more perfect.

Dr. Alexander B. Johnson said that his own experience in the radical operative treatment of prostatic hypertrophy had been confined to the perineal operation, and his results had been very satisfactory, a large proportion of the cases having survived the operation and being practically cured, the residual urine being very trivial in quantity and his patients suffering from very few of the symptoms of cystitis, perhaps none at all. In each case there had been a marked diminution, or entire abolishment, of the sexual functions. He preferred the perineal route chiefly because he thought that drainage was more easily accomplished and much more satisfactory. As to the question of what proportion of cases coming to surgeons for the relief of symptoms produced by prostatic hypertrophy should be recommended for operation and under what conditions he did not think was a question readily answered in a few words. He believed though that a considerable proportion of the cases of hypertrophy of the prostate occurring in individuals among the more intelligent and comfortable walks of life could be treated very satisfactorily, and for a long time, by means of the catheter. He would not recommend an individual suffering from marked senile degenerations to undergo the perineal or other kinds of prostatectomy. Such cases, he said, were attended by a large mortality rate. But, in those cases which came to him, with only a moderate amount

of cystitis, with kidneys in fairly good condition, with good lungs and arteries and a good heart, even though they be more than sixty years old, he considered that an operation could be performed with good prospects of relieving the symptoms. He said he had had only a very limited experience with the galvanocautery or the Bottini operation. The experience of his colleagues in the city might prejudice one, so he believed, against it when it first came out.

Dr. Parker Syms said that the radical treatment of prostatic obstruction to urination was undoubtedly the most important question before surgeons to-day. Its operative methods have passed through a complete evolution during the past decade.

He emphasized the dangers of catheter life in this class of patients, and said when they had to resort to the catheter for urination the death rate was practically 100 per cent. His own experience in this line had been quite active during the past few years, and he had operated upon 29 patients. During this period he had also been consulted by a little over 40 patients who had not submitted to operation. To his knowledge more than 50 per cent. of those who refused to submit to operation had died. Among his operated cases he had operated upon 23 without a death, but lost his twenty-fourth case. This patient died apparently from the effect of general anesthesia. The patients who recovered did so without any untoward complications. In regard to the Bottini operation he said he was willing to assume the responsibility of condemning that operation without having had personal experience with it. The Bottini operation was exploited nearly thirty years ago, was thoroughly tested and was universally abandoned because it had proved a failure. Personally he objects to it because it is an unsurgical and unscientific procedure; it is not radically curative, except in a small proportion of cases, and instead of being a safe procedure as claimed by its advocates, it is a dangerous one. Statistics show it to be far more dangerous than perineal prostatectomy. There are three things that he has inveighed against in this connection, one is cystoscopy in these cases of prostatic obstruction, and the other two are the Bottini operation and the suprapubic route for prostatectomy. He likened the suprapubic route to the prostate, to the occipital route to the tonsil. A year and a half ago his friend, Dr. Young, was an advocate of the Bottini method and of suprapubic prostatectomy, and Dr. Young had invited Dr. Syms to visit Baltimore and become a convert to these methods, but he, on the other hand, had promised Dr. Young to visit Baltimore and see Dr. Young performing perineal prostatectomy in preference to the other two methods; he is glad that his prophesy has come true and that Dr. Young is to-day an ardent advocate of perineal prostatectomy. He called attention to the fact that the operation described by Young is practically the one devised by Proust and Albaron, of Paris, they employing almost the same incision and method including the double-bladed tractor. In concluding, he reiterated his opinion that perineal prostatectomy is the safest of all procedures for the relief of prostatic obstruction. In support of this opinion he quoted the statistics of Young, the excellence of whose work is acknowledged by all. Young's cases show about 7 per cent. mortality for the Bottini operation, and nearly 20 per cent. mortality for the suprapubic operation, and practically no mortality for the perineal route.

Dr. Paul Thorndike, of Boston, said that in spite of what had been said in criticism of the catheter, he still claimed for it a place in the treatment of these cases. He hoped the gentlemen realized how large a part in the development of the technic of prostatectomy had



been taken by Dr. Samuel Alexander, of New York City. Eight years ago, he said, when they were all doing suprapubic work, Dr. Alexander began the advocacy of the perineal route, which was then receiving scant attention from the rest of the men in the East, although Dr. Goodbody was having success with it in the West. Since then the perineal route had proved to be the one along which Dr. Thorndike believed that Dr. Alexander's persistent advocacy of this method of operating had played no small part in the rapid development of prostatectomy.

Dr. Orville Horwitz, in closing the discussion, remarked that his paper had embraced most of the questions that had been brought out by the different speakers; and as the hour was late he would occupy but a few minutes in closing the debate. He agreed with Dr. Thorndike that anesthetics were frequently a source of great danger; especially in old and feeble patients. He had found, however, most satisfaction from the administration of chloroform and oxygen given by means of a special apparatus devised for the purpose. He coincided with Dr. Young in the belief that in certain selected cases the application of a spinal anesthesia was the best method to be adopted. He had seen dribbling of urine follow either a Bottini operation or a prostatectomy with the difference that when the condition supervened after the former operation, it is temporary, while in the latter it is usually permanent. Regarding the perineal galvanocautery operation, advocated by Dr. Chetwood, he did not doubt that it might be of service in some special cases; but in 93 operations of the kind performed by him he had never found it necessary to resort to the perineal incision. It is believed that the simple technic recommended by Bryson for performing perineal prostatectomy offered many advantages over other methods, which might be briefly summarized as follows: (1) Only a short time is required in order to remove the gland, which is a great advantage in cases of old people; (2) experience has shown that in 90 per cent. of cases the prostate gland can be safely removed by means of a median perineal incision; (3) no special instruments are required in order to perform the operation; and there is much less danger of the formation of a recto-urethral fistula. It was not believed that a hypertrophied prostate gland can be removed without disturbance of the ejaculatory ducts. The interference with, or removal of the ducts, has no bearing whatever on the production of impotence, as it has been frequently observed that in chronic inflammatory conditions of the posterior urethra the ejaculatory ducts are obliterated; besides, there are many cases on record where there has been a congenital absence of the epididymis and vas deferens, these structures having been frequently resected in diseased conditions giving rise to sterility, but not to impotence. The claim made by the gentleman who advocates the performance of suprapubic prostatectomy, that he had performed the method frequently, and was not familiar with the operation by the perineal route, does not appear as altogether a logical reason for adopting a method which has been found to be much more dangerous and less satisfactory than the removal of the gland by means of the perineum. The surgeon who desires to do the best work must be prepared to select from his experience and knowledge the operation which is best suited for each individual case, and must be able to perform with equal skill and dexterity any of the various manipulations which may be required.

**Quarantine for Consumptives in Australia.**—The Board of Health of Sydney has decided to treat consumption as an infectious disease and to isolate all cases.

## BOOK REVIEWS.

**THE AMERICAN POCKET MEDICAL DICTIONARY.** Edited by W. A. NEWMAN DORLAND, M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania. W. B. Saunders & Co., New York, Philadelphia and London.

THIS attractive little volume appears in a new edition in a surprisingly short time after its predecessor. This argues well for its popularity, which appears to be well deserved. Several thousand new words are said to have been added and the work brought fully up to date, but we find that most of the terms announcing the recent investigations on immunity and allied subjects, such as amboceptor, receptor, complement, toxon, precipitin, hemology, etc., are not given, an omission of consequence, since these words are beginning to appear in the literature and their meanings are not apparent to those who see them for the first time.

**TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY.** Fourteenth Session, held at Boston, May 26, 27, and 28, 1902, with addenda from the Thirteenth Session, and an Index. Vols. I-XIV, inclusive. Edited by WALTER LESTER CARR, M.D. Reprinted from the *Archives of Pediatrics*, 1902.

THIS volume of transactions will prove especially valuable to those interested in this field as it contains an index of the papers read by members of the American Pediatric Society from its first session up to date. The twenty-six essays reprinted are all of interest and deserve attention.

**A SURGICAL HANDBOOK; for the Use of Students, Practitioners, House Surgeons and Dressers.** By FRANCIS M. CAIRD, M.B., F.R.C.S., and CHARLES W. CATCART, M.B., F.R.C.S. With numerous illustrations. Twelfth edition. Charles Griffin & Co., Limited, London; W. T. Keener & Co., Chicago.

THIS book has proven itself so useful to the young surgeons of England that it has reached its twelfth edition in about as many years. Even a cursory examination is sufficient to explain its popularity, for it is a model of its kind, compact in form, well printed and illustrated, and replete with information of the practical, every-day sort, not usually occurring in text-books. The principles and methods advocated are all thoroughly modern and reliable, and we take pleasure in bringing it to the notice of all who are not accomplished surgeons.

**THE PRACTICE OF MEDICINE.** A Text-book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania. Third Edition. P. Blakiston's Son & Co., Philadelphia.

PROFESSOR TYSON'S Text-book of the Practice of Medicine has very deservedly reached its third edition. It is undoubtedly a very useful and thoroughly practical volume. It probably contains more suggestions for treatment than any of the single volume text-books on the practice of medicine published. There are special features that commend it and add greatly to its interest. There are details of the history of the disease so introduced as to throw light on some feature of the affection under consideration that make it very pleasant reading. The chapters on nervous diseases are, we think, the clearest, briefest, most easily understood of any exposition of nervous diseases that we are familiar with in any of the general text-books of medi-

cine. There are many features in the volume that commend it. It lacks much of the technically scientific air that is often so formidable to the student, but appears so necessary to most authors, yet it is thoroughly up-to-date with true modern medical progress. It is very practical and definite in its recommendations for treatment. The chapters on kidney diseases are especially definite as regards diagnosis and treatment and of themselves must commend the book to many readers.

**PHYSICAL DIAGNOSIS OF DISEASES OF THE CHEST.** By RICHARD C. CABOT, M.D., Physician to Out-patients, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School. Second revised edition. With 147 illustrations. William Wood & Co., New York.

THIS excellent book well deserves the reputation which it has won among medical students of being the most thorough and reliable work upon the subject which they may conveniently employ. It is not intended to embody any original ideas of the author and is not made confusing to the beginner by the introduction of numerous fanciful and unproven methods of eliciting signs which are urged by certain enthusiasts as furnishing valuable means of obtaining almost pathognomonic evidences of particular conditions. It is founded upon several well-known encyclopedic treatises and endeavors to eliminate the numerous important errors which are found in almost every small and condensed book upon the subject. It is intended for use by the beginner in physical diagnosis, and yet the diseases of the heart and lungs are so thoroughly dealt with that even the most expert diagnostician cannot fail to gain valuable hints and inspiring thoughts from its perusal. It is brought up to date by the addition of a chapter upon radioscopia which is now so frequently used to confirm physical signs otherwise elicited, or to determine conditions which are not yet far enough advanced to enable a diagnosis to be made by other means.

**PROGRESSIVE MEDICINE.** A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Dr. H. A. HARE and H. R. M. LANDIS. Vol. III. September, 1903: Lea Brothers & Co., Philadelphia and New York.

DISEASES of the Thorax and its Viscera, including the Heart, Lungs, and Blood-vessels, Dermatology and Syphilis, Diseases of the Nervous System and Obstetrics, make up the list of contents of this last number of Progressive Medicine. The same authors are in control of the same sections, Drs. William Ewart, William S. Gottheil, William G. Spiller and Richard C. Norris, respectively.

A careful reading of the various abstracts here presented confirms and further extends our favorable impression of this work and of its great sphere of usefulness to the practitioner of the country.

While here and there evidences of loose and rapid abstracting are to be found, the work maintains the high standard that is essential in a work of this kind.

Of the various sections, that on the Nervous System fulfills the ideal conditions better than some of the others. Here the author has gone over a wide range of literature and has coordinated many opinions in a general paragraph. He has fairly succeeded in keeping away from the string of isolated abstract style that mars most year books. The author on diseases of the thorax, etc., has not so successfully avoided this slight retrograde tendency.

We note an absence of the subject-matter of psychiatry in this volume, in fact, in the five or six years of this

series foundation, diseases of the mind have been unaccountably neglected. In view of the fact that they occupy numerically so high a position in the community this oversight is surprising.

In all other respects we find Progressive Medicine of increasing value with each successive edition, and are convinced of not only its temporary value but of its permanent necessity.

**A NURSE'S HANDBOOK OF OBSTETRICS FOR USE IN TRAINING-SCHOOLS.** By JOSEPH BROWN COOKE, M.D., Fellow of the New York Obstetrical Society; Lecturer on Obstetrics to the New York City Training-school for Nurses; Surgeon to the New York Maternity Hospital, etc. J. B. Lippincott Company, Philadelphia and London.

ONLY a few years ago almost all the obstetrical nursing was delegated to those well-meaning but poorly-informed women whose knowledge of the subject was practically limited to their own experiences in becoming the mothers of three or four children. During recent years the attitude of physicians toward this branch of the medical profession has changed considerably so that it is generally recognized that some special training is necessary for one to justly pose as an accoucheur. To properly conduct a labor and subsequent puerperium at the present time according to up-to-date principles one cannot help but appreciate the important rôle which a well-trained nurse plays. The obstetrician is becoming more and more dependent upon her ability to properly care for mother and child and to direct his attention to possible deviations from the normal course of events. To meet the requirements of such a pupil-nurse this volume has been especially prepared. On the one hand, the methods employed to make such works suitable for mothers and nurses, and on the other hand, the deeply scientific teachings intended for the medical student have both been avoided as much as possible and the aim has been to embody "all the science and art of obstetrics that a nurse need know to practise her profession in an intelligent manner, consistent with her position as a scientifically educated woman." We feel that the author has remarkably well attained his object and that the volume deserves a wide use in the nurses' training-schools.

**A TEXT-BOOK OF MEDICINE,** Designed for the Use of Students. By JAMES MAGOFFIN FRENCH, M.D., Lecturer on Theory and Practice of Medicine, Medical College of Ohio, etc. Illustrated by ten full-page plates and fifty wood-engravings. William Wood & Company, New York.

THERE is one fault that might be found with this volume. It is too large for a student's handbook and it is not sufficiently complete for the use of a practising physician. The attempt to crowd all the subjects of medicine, including diseases of the nervous system and the various intoxications into the volume has given it a hurried fragmentary air. There are some excellent features in the book. We note, for instance, the charts on which are marked the exact locations throughout the world at which filariasis occurs. Here again, however, there is evidently an effort to prepare the student for examinations, rather than for his practical work, since at least as much space is devoted to the animal parasites of human beings as is given in much larger volumes on the practice of medicine.

We feel sure that when Dr. French will have the opportunity in a subsequent edition to enlarge his volume that it will make an excellent text-book of the practice of medicine. Compression has in our opinion somewhat impaired the value of this edition.